TENDER

BID NO: SCMU3-23/24-0738-HO
Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District)

NAME OF COMPANY:
_____

CSD Nr:
_____

CRS Nr (CIDB):
_____

CLOSING DATE: 19 April 2024 TIME: 11:00 am

Deliver to:

EASTERN CAPE DEPARTMENT OF HEALTH: SUPPLY CHAIN MANAGEMENT OFFICE,

situated at the following address:

GLOBAL LIFE CENTRE, SCM UNIT, C/O PHALO AVENUE AND R63 (OPPOSITE ENGINE GARAGE), BHISHO
6001

THE TENDER

1. PART T1 - TENDERING PROCEDURES

PART T1.1: TENDER NOTICE AND INVITATION TO TENDER

1.1. T1.1.Tender Notice and Invitation to Tender

The Eastern Cape Department of Health invites contractors with a CIDB Grading of **CIDB 7GB** or higher in the following Class of works **(CIDB 7GB or higher)** to tender for the **"Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District)"** for a **(14) Fourteen-month** contract (Excluding builders holidays). The contract will be based on the JBCC Edition 6.2 of 2018 and **The Eastern Cape Department of Health** will enter a contract with the successful tenderer.

BID DOCUMENTS MAY BE OBTAINED FROM THE ECDOH & TREASURY WEB SITES AT NO COST:

There will be a compulsory briefing meeting on **26 March 2024 @ 11h00, at Motherwell CHC, Gqeberha, Nelson Mandela Bay Health District, Eastern Cape Province.** Prospective bidders to meet at the parking area in front of the existing Motherwell CHC site, **11h00.**

Queries & Technical enquiries relating to the issue of these documents may be addressed in writing to Ms. T Notshe via email: thabisa.notshe@echealth.gov.za Phone: 040 608 9501

The closing time for receipt of tenders by **The Eastern Cape Department of Health** is 11:00am on **19 April 2024**. Telegraphic, telephonic, telex, facsimile, e-mail and late tenders will not be accepted. Bids must be submitted in sealed envelopes clearly marked **"TENDER: Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District) BID NO: SCMU3-23/24-0738-HO"** must be deposited in the bid/tender box of:

EASTERN CAPE DEPARTMENT OF HEALTH: SUPPLY CHAIN MANAGEMENT OFFICE,

situated at the following address:

GLOBAL LIFE CENTRE, SCM UNIT, C/O PHALO AVENUE AND R63 (OPPOSITE ENGINE GARAGE), BHISHO.

It is the responsibility of the tenderer/s to ensure that bid documents /proposals are submitted on or before closing time and the correct location as the department will not take responsibility of wrong delivery. Tenderers using courier services for delivery of their bid documents must ensure the delivery is at the correct place / location and time as the department will not be held responsible for wrong delivery. Not delivered to Departmental officials. The Department will not accept responsibility if bids received by officials are not timely deposited in the Bid Box.

Tenders may only be submitted on the tender documentation that is issued. Tenderers must be registered on the National Treasury Central Supplier Data Base and proof of registration must be submitted with the proposal (https://secure.csd.gov.za). Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the Tender Data.

B. BID EVALUATION:
This bid will be evaluated in Two (2) Stages as follows:

Stage One: Compliance, responsiveness to the bid rules and conditions, thereafter they will be evaluated in terms of Price & Specific Goals

Stage Two: Price & Specific Goals in terms of the Preferential Procurement Regulations of 2022.

PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT (PPPFA) Price & Specific Goals

POINTS WILL BE AWARDED AS FOLLOWS:

Maximum points on Price	-	**80 points**
Maximum points for Specific Goals	-	**20 points**

Maximum points - 100 points

C. BID SPECIFICATIONS, CONDITIONS AND RULES

The minimum specifications, bid conditions and rules are detailed in the bid document under Tender Data.
The specifications, rules, special conditions of bid, evaluation criteria, and rules for evaluation for compliance to local content and other bid conditions are detailed in the document.

Tender validity period is **90 days.**

D. TENDER SUBMISSIONS:

Bids must be submitted in sealed envelopes clearly marked**: "Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District) BID NO: SCMU3-23/24-0738-HO"** must be deposited in the tender / bid box:

EASTERN CAPE DEPARTMENT OF HEALTH: SUPPLY CHAIN MANAGEMENT OFFICE,

situated at the following address:

GLOBAL LIFE CENTRE, SCM UNIT, C/O PHALO AVENUE AND R63 (OPPOSITE ENGINE GARAGE), BHISHO.

E. ENQUIRIES WITH REGARD TO THIS ADVERT MAY BE DIRECTED TO:
Ms. T Notshe via email: thabisa.notshe@echealth.gov.za

PART T1.2: TENDER DATA

1.2. T1.2 Tender Data

The conditions of tender are the latest edition of SANS 10845-3, *Standard conditions of tender*.
SANS 10845-3 makes several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the provisions of SANS 10845-3 *and* as contained in **Annexure C** of **Standard for Uniformity in Construction Procurement (Board Notice 423 of 2009 Government Gazette No 42622 of August 2019)**.
Each item of data given below is cross-referenced to the clause in SANS 10845-3 to which it mainly applies.

Clause number	Tender Data
3.1	The Employer is the Eastern Cape Department of Health
3.2	The tender documents issued by the employer comprise the following documents: **THE TENDER** **Part T1: Tendering procedures** T1.1 - Tender notice and invitation to tender. T1.2 - Tender data **Part T2: Returnable documents** T2.1 - List of returnable documents T2.2 - Returnable schedules **THE CONTRACT** **Part C1: Agreements and Contract data** C1.1 - Form of offer and acceptance C1.2 - Contract data C1.3 - Dispute Resolution Mechanism **Part C2: Pricing data** C2.1 - Pricing Instructions C2.2 - Bills of Quantities **Part C3: Scope of work** C3 - Scope of work **Part C4: Site information** C4 - Site information
3.3	The tender documents issued by the employer comprise the documents listed on the contents page
3.4	The employer's agent is: **BRINKMAN NDAYI MCALL (PTY) LTD:** **SUITE 1 LYNDON** **114 PARK DRIVE** **GQEBERHA** Ms. A. Swart via email: **arindas@bnm.co.za** **Phone No. 041 5852125**
3.5	The language for communications is English
3.6	The competitive negotiation procedure shall be applied.
3.7	Procurement Method: Two (2) stage procurement procedure shall be applied.
4	**Tender's obligations**

4.1	The following tenderers who are registered with the CIDB, or are capable of being so registered prior to the evaluation of submissions, are eligible to have their tenders evaluated: a) contractors who have a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) of 25(7A) of the Construction Industry Development Regulations, for a **CIDB 7GB or Higher** class of construction work; and Joint ventures are eligible to submit tenders provided that: 1. every member of the joint venture is registered with the CIDB; in GB class of works. 2. the combined contractor grading designation calculated in accordance with the Construction industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a CIDB **7GB or higher** class of construction work or a value determined in accordance with Regulation 25 (1B) of 25(7A) of the Construction Industry Development Regulations **(Three contractors registered in contractor grading designation 6 of which the lead partner must be registered in the class of work under consideration OR Two contractors registered in contractor grading designation 6 of which one is the lead partner registered in the class of work under consideration plus two contractors registered in contractor grading designation 5 within the class of work under consideration OR One grade 7 lead partner within the class of work under consideration plus any grade combination contractors in any class of work)** 3.Joint Venture Agreement. 4.Separate SBD 6.1, Specific Goals Claim form, POPIA act Forms with % split clearly indicated to be submitted for each JV partner.
4.2	The employer will compensate the tender as follows JBCC Edition 6.2 of 2018 with Government Clauses. The employer **<u>will not</u>** compensate the tenderer for any costs incurred in attending interviews or making any submissions in the office of the employer.
4.3	It is the responsibility of the tenderer to check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission.
4.4	**Confidentiality and copyright of documents** Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.
4.5	Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are incorporated into the tender documents by reference.
4.6	Acknowledge receipt of addenda to the tender documents, which the employer may issue, and, if necessary, apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.
4.7	The arrangements for a compulsory clarification meeting are as stated in the Tender Notice and Invitation to Tender. Tenderers must sign the attendance list in the name of the tendering entity. Addenda will be issued to and tenders will be received only from those tendering entities appearing on the attendance list. **Tender documents will not be made available at the clarification meeting**
4.8	**Seek clarification** *Request clarification of the tender documents, if necessary, by notifying the employer at least **5** **<u>(Five) working days</u>** **before the closing time stated in the tender data.***
4.9	Tenderers are required to state the rates and currencies in Rands. Include in the rates, prices, and the tendered total of the prices (if any), all duties, taxes which the law requires to be paid [except value added tax (VAT)], and other levies payable by the successful tenderer, that are applicable 14 days before the closing time stated in the tender data. Show the VAT payable by the employer separately as an addition to the tendered total of the prices. Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data. State the rates and prices in monetary value of the contract unless otherwise instructed in the tender data.

4.10	Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer or to correct errors made by the tenderer and ensure that all signatories to the tender offer initial all such alterations. Do not make erasures using masking fluid.
4.11	Main tender offers are not required to be submitted together with alternative tenders.
4.12	No alternative tender offers will be considered
4.13.1	Parts of each tender offer communicated on paper shall be submitted as an original. Submit a) the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with a translation of any documentation in a language other than the language of communication established in 3.5, and b) the parts communicated electronically by the employer of its agents on paper format with the tender.
4.13.2	Sign the original and all copies of the tender offer where required in terms of the tender data. State in the case of a joint venture which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer. NOTE The employer holds all authorized signatories liable on behalf of the tenderer.
4.13.3	A tender security in the amount of **N/A** is required and shall remain valid for a period not exceeding N**/A** days after the closing date for tender offers. The form of the tender security shall not differ substantially from the sample provided in Annex D of SANS 10845-3.
4.13.4	The employer's details and address for delivery of tender offers and identification details that are to be shown on each tender offer package are: **EASTERN CAPE DEPARTMENT OF HEALTH: SUPPLY CHAIN MANAGEMENT OFFICE,** **situated at the following address:** **GLOBAL LIFE CENTRE, SCM UNIT, C/O PHALO AVENUE AND R63 (OPPOSITE ENGINE GARAGE), BHISHO.** **Tender / Bid identification details:** **Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District) BID NO: SCMU3-23/24-0738-HO** **Closing time and date: As per Tender advertisement**
4.13.5	**The tenderer is required to submit with his tender the following compulsory certificates:** **1) a copy of the CSD report showing, amongst other things, that tax matters of the service provider are in order with the South African Revenue Services. *In the case of a Joint Venture/Consortium/Sub-contractors each party must submit a separate* CSD report showing, amongst other things, that tax matters of the service provider are in order with the South African Revenue Services.** **2) CIDB Grading certificate or CRS number.** **3) COIDA Letter of Good standing from the Department of Labour and/or FEM**
4.13.6	A two-envelope procedure will not be required.
4.13.7	Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted. The tenderer accepts that the employer does not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.
4.14	The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender. Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Proof of posting shall not be accepted as proof of delivery.

	Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of the standard conditions of tender in this part of SANS 10845 apply equally to the extended deadline.
4.15.1	The tender offer validity period is **90 days**. Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data. If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period, with or without any conditions attached to such extension. Extend the period of the tender security, if any, to cover any agreed extension requested by the employer.
4.15.2	**Placing of contractors under restrictions / withdrawal of tenders** If any tenderer who has submitted a tender offer or a contractor who has concluded a contract has, as relevant: withdrawn such tender or quotation after the advertised closing date and time for the receipt of submissions; after having been notified of the acceptance of his tender, failed or refused to commence the contract; had their contract terminated for reasons within their control without reasonable cause; offered, promised or given a bribe in relation to the obtaining or the execution of such contract; acted in a fraudulent, collusive or anti-competitive or improper manner or in bad faith towards the Provincial Government; or, made any incorrect statement in any affidavit or declaration with regard to a preference claimed and is unable to prove to the satisfaction of the Provincial Government that the statement was made in good faith or reasonable steps were taken to confirm the correctness of the statements, such tenderer/s may be placed under restriction from tendering with the state. Procedures are outlined in the EC SCM Policy for Infrastructure procurement and Delivery Management and also on **cidb** Inform Practice Note #30. Excerpts of the policy can be availed on request of any interested tenderer.
4.16	Access shall be provided for the following inspections, tests and analysis: **N/A**
4.17	the preferred tenderer will be required to submit an approved insurer undertaking to provide the Performance Bond / Guarantee / Surety / Security to the format and/or standard
5	**Employer's undertakings**
5.1	The Employer will respond to requests for clarification received up to **Five (5)** working days before the tender closing time. If, as a result of the issuing of addenda, it is necessary to extend the closing time stated in the tender data, grant such extension and notify all respondents accordingly.
5.2	The employer shall issue addenda until **Five (5)** working days before tender closing time.
5.3	Tenders will be opened immediately after the closing time for tenders at **11:00am hours.**
5.4	Do not disclose to tenderers, or to any person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.
5.5	Determine, after opening and before detailed evaluation, whether each tender offer that was properly received a) complies with the requirements of the standard conditions of tender in this part of SANS 10845, b) has been properly and fully completed and signed, and c) is responsive to the other requirements of the tender documents. A responsive tender is one that conforms to all the terms, conditions, and scope of work of the tender documents, without material deviation or qualification. A material deviation or qualification is one which, in the employer's opinion, would d) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the scope of work, e) significantly change the employer's or the tenderer's risks and responsibilities under the contract, or f) affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified. Reject a non-responsive tender offer, and do not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.
5.6	**Arithmetical errors, omission, and discrepancies**

<table>
<tr><td></td><td>Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.
For Vat related discrepancies, National and Provincial Treasury prescripts in relation to VAT procedures apply.</td></tr>
<tr><td>5.7.1</td><td>The financial offer will be reduced to a comparative basis using the Tender Assessment Schedule.
Table F.1: Formulae for calculating the value of A
<table>
<tr><th>Formula</th><th>Comparison aimed at achieving</th><th>Option 1[a]</th><th>Option 2[a]</th></tr>
<tr><td>1</td><td>Highest price or discount</td><td>$A = \left(1 + \frac{(P - P_m)}{P_m}\right)$</td><td>$A = P/P_m$</td></tr>
<tr><td>2</td><td>Lowest price or percentage commission / fee</td><td>$A = \left(1 - \frac{(P - P_m)}{P_m}\right)$</td><td>$A = P_m/P$</td></tr>
<tr><td>a</td><td colspan="3">P_m is the comparative offer of the most favourable comparative offer.
P is the comparative offer of the tender offer under consideration.</td></tr>
</table></td></tr>
<tr><td>5.7.2</td><td>The procedure for the evaluation of responsive tenders is Method 2: Administrative compliance, Price and Preference
Stage 1: Administrative requirements and Mandatory requirements
Stage 2: Price and preference (80/20 system)</td></tr>
</table>

STAGE ONE: ADMINISTRATIVE REQUIREMENTS AND MANDATORY REQUIREMENTS

A. Bidders' proposals must meet the following minimum requirements and supporting documents must be submitted with the completed bid document in a sealed envelope in the bid box at the closing date and time. Failure to comply will automatically eliminate the bid for further consideration:

1. Bid Document (This Document must be submitted in its original format)
2. Bids which are late, incomplete, unsigned or submitted by facsimile or electronically, will not be accepted.
3. Bidder must be registered with CIDB in the correct grading and class of works as per the tender notice and requirements. It is the responsibility of the bidder to keep the status on CIDB active throughout bidding process (advert till award stage).
4. Bidders must be a legal entity.
5. Form of offer and Acceptance (fully completed and signed)
6. SBD4 must be duly completed and signed. Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract, such interest must be disclosed on question 2.3.1.
7. Compulsory Enterprise Questionnaire (Completed and signed) (JV partners must complete separate Questionnaire forms, separate specific goal forms, POPIA Consent forms and submit) (% split to be indicated for each JV partner)
8. If the offer is "Vat Inclusive", the VAT registration number of service provider must be indicated and if a service provider is not a VAT Vendor but include VAT in its prices, the successful service provider will be given 21 days to register as a VAT Vendor with SARS, after the issuing of an appointment letter. If a bidder is a VAT vendor/registered, the bidder is required to explicitly state the VAT amount. VAT vendors must include VAT at 15% in the bid offer(s).
9. Resolution to Sign (if applicable)
10. Attendance of compulsory briefing meeting
11. This tender will be awarded as a whole. All trades listed in the Bills of Quantities or Pricing schedule must be priced for (except provisional sums and allowances), failure to do so will result increase commercial risk of the bid and may lead to elimination or passing over of the bidder.
12. The tenderer is required to submit with his tender the following compulsory certificates:
    1) A copy of the CSD report showing, amongst other things, that tax matters of the service provider are in order with the South African Revenue Services. In the case of a Joint Venture/Consortium/Sub-contractors each party must submit a separate CSD report showing, amongst other things, that tax matters of the service provider are in order with the South African Revenue Services.
    2) CIDB Grading certificate or CRS number.
    3) COIDA Letter of Good standing from the Department of Labour and/or FEM
13. ECDOH SCM Policy applies.
14. Returnable Schedule: SBD1-Invitation to bid must be completed and signed
15. The bidder must be registered on the Central Supplier Database (CSD) before the Tender Closing Date.
16. All bidders' tax matters must be in order prior award. Bidders' tax matters will be verified through CSD.
17. Declaration of Employees of the State or other State Institutions.
18. Due Diligence In-Loco Inspection of the Bidder / or JV. As part of its due diligence obligations, the Department of Health reserves the right to do an In-Loco inspection of the offices and premises of the Bidder / or JV to verify the following:
    1) The existence of the business enterprise as declared on the SBD1 form.
    2) The existence of the resources including plant & equipment, to render the services.
    3) The existence of projects completed by the bidder/JV as declared.
19. In the event where the In-Loco Inspections find inconsistencies and or misrepresentation in terms of what has been declared in the Bid submission, the Bidder will be notified of such inconsistencies and or misrepresentations in writing and allowed 7 (seven) days to rectify and or clarify such.

	20. As part of the due diligence obligations, a Technical Risk analysis of all bids including the Bills of Quantities will be carried out by the Bid Evaluation Committee with the support of the Built Environment Professional Team, to check for mistakes in the Pricing schedules, BOQ's, and to confirm whether the tender price submitted is market related and does not pose a commercial risk to the Client. 21. This Technical Risk Analysis includes the analysis of the In-Loco inspection findings. 22. In the event where the Technical Risk Analysis of the bidder who scored the highest points, indicates a commercial risk to the Client, the Client reserves the right to award the Bid to the next highest scorer of Bid points. 23. The Technical Risk Analysis and In-Loco inspections can be carried out anytime during or after Stages 1 & 2 evaluation, before award. 24. The Bidder who complies with the Due Diligence Technical Risk Analysis and In-Loco Inspection criteria, may then be considered for recommendation for award. 25. In the event where the Bidder has failed to clarify, rectify the inconsistencies and or misrepresentations within the 7 (seven) day period, the Health Department shall consider the next Bidder who scored the highest points to be considered for award. 26. The Department will contract with the successful bidder by signing a formal contract. 27. Wherever a brand name is specified in this document (i.e. specifications, pricing schedule, bill of quantities or anywhere), the department requires an item similar/equivalent or better. 28. Protection of personal information: Consent (POPIA) 29. The successful tenderer (after being informed) will be required to bring along an unsigned copy of the form of contract to be signed by parties (e.g. JBCC Edition 6.2 of 2018 with Government Clauses) **30.** A fixed construction guarantee of 10% must be provided as security, in the event that the considered bidder fail to provide this security, the client will consider the next highest scoring bidder for consideration.

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STAGE TWO: EVALUATION POINTS ON PRICE AND SPECIFIC GOALS / PPPFA OF 2022

The **80/20 preference point system** shall be applied for the purposes of this bid as per the requirements of the *Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000)* and B-BBEE/ PPPFA Regulations *of 2022*

<table>
<tr><th>Criteria</th><th>Points</th></tr>
<tr><td>POINTS ON PRICE</td><td>80</td></tr>
<tr><td>SPECIFIC GOALS</td><td>20</td></tr>
<tr><td>TOTAL</td><td>100</td></tr>
</table>

The 80/20 preference point system for acquisition of services, works or goods do not exceeding Rand value of R50 million:

(a) The following formula must be used to calculate the points for price in respect of tenders (including price quotation) with a Rand value equal to, or above R 30 000 and up to Rand value of R 50 000 000 (all applicable taxes included):

The financial offer will be scored using the following formula:

$$A = (1 - (P - Pm))$$
$$Pm$$

The value of value of W_1 is:

1) **90** where the financial value inclusive of VAT of all responsive tenders received have a value in **excess of R50 000 000** or

2) **80** where the financial value inclusive of VAT of one or more responsive tender offers have a value that **equals or is less than R 50 000 000**.

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<tr><td>5.7.3</td><td>The procedure for the evaluation of responsive tenders is Method 2 (Administrative, price and specific goals)</td></tr>
<tr><td>5.7.4</td><td>The quality criteria and maximum score in respect of each of the criteria are as follows: N/A</td></tr>
<tr><td>5.7.5</td><td>Each evaluation criteria will be assessed in terms of five indicators – N/A</td></tr>
<tr><td>5.7.6</td><td>The prompts for judgment and the associated scores used in the evaluation of quality shall be as follows: N/A</td></tr>
<tr><td>5.8</td><td>

Tender offers will only be accepted if:

a) the tenderer is registered on the Central Supplier Database (CSD) for the South African government (see https://secure.csd.gov.za/) unless it is a foreign supplier with no local registered entity

b) the tenderer is in good standing with SARS according to the Central Supplier Database. Bidders must submit a CSD no. or tax status compliance pin.

c) the tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation;

d) the tenderer or any of its directors/shareholders is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector.

e) the tenderer has not:
   i) abused the Employer's Supply Chain Management System; or
   ii) failed to perform on any previous contract and has been given a written notice to this effect.

f) the tenderer has completed the Compulsory Declaration and there are no conflicts of interest which may impact on the tenderer's ability to perform the contract in the best interests of the employer or potentially compromise the tender process.

g) the tenderer has completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the tenderer's ability to perform the contract in the best interests of the employer or potentially compromise the tender process and persons in the employ of the state are permitted to submit tenders or participate in the contract.

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	h) Bids which are late, incomplete, unsigned or submitted by facsimile or electronically will not be accepted. i) the tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer. j) the employer is reasonably satisfied that the tenderer has in terms of the Construction Regulations, 2014, issued in terms of the Occupational Health and Safety Act, 1993, the necessary competencies and resources to carry out the work safely. A letter of Good standing from the Labour Department is a compulsory mandatory requirement. k) the tender has offered a market related offer. If the offer is believed not to be market related, the department through its Supply Chain Management bid committees will attempt to negotiate the offer with identified bidder/s to a reasonable amount. Bidders are not allowed to increase their tender offers during this process. l) A Resolution of signatory form has been completed and signed by director/s or a letter bearing a letterhead of the tenderer has been attached (specific to this bid) to the bid submission; it must be duly signed by all directors and submitted the bid. Only a duly authorized official can sign the bid. m) Prospective bidders must register on CSD prior submitting bids (open tenders). Any prospective bidder found to have Tax matters not in order with SARS (verified through CSD) during the evaluation process (after being given an opportunity to rectify tax matters) will be eliminated and not be considered further in the process. Preferred bidder/s will be afforded an opportunity to rectify their tax affairs within 7 days. A bidder that fails to rectify its tax matters with SARS will be eliminated. n) **NOTE:** The amount reflected on the Form of Offer and Acceptance takes precedence over any other total amount indicated elsewhere in bidder's tender submission. If the Form of Offer and Acceptance has no value or figure, the bidder will be regarded as having made no offer. o) The department reserves the right not to award the bid to the most favourable tenderer, if any of the situations occur: if it is not assisting in the advancement of designated groups; risk profile of the favourable firm is too high; the bidder has been awarded a considerable number of projects by the department or provincial government; has performed unsatisfactorily in the past, etc. p) Bids shall not be awarded to Bidders appearing on the Health Department and/or National/Provincial Treasury Defaulters List. q) In the event where the Technical Risk Analysis of the bidder who scored the highest points, indicates a commercial risk to the Client, the Client reserves the right to award the Bid to the next highest scorer of Bid points. r) In the event where the recommended Bidder has failed to comply with the conditions as set out in the letter of award, the client shall notify the recommended Bidder of his/her failure to comply and recommend for award the next bidder that scored the highest points. The Conditions as set out in the letter of award are as follow: 1. Proof of having All risk, public liability and support insurances as stipulated in the contract. 2. Submission of a Construction Safety, Health and Environmental Plan. 3. Contract Guarantee (as selected in the tender document)
	4. the tenderer has completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the tenderer's ability to perform the contract in the best interests of the employer or potentially compromise the tender process and persons in the employ of the state are permitted to submit tenders or participate in the contract.

	5. Bids which are late, incomplete, unsigned or submitted by facsimile or electronically will not be accepted. 6. the tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer. 7. the employer is reasonably satisfied that the tenderer has in terms of the Construction Regulations, 2014, issued in terms of the Occupational Health and Safety Act, 1993, the necessary competencies and resources to carry out the work safely. A letter of Good standing from the Labour Department is a compulsory mandatory requirement. 8. the tender has offered a market related offer. If the offer is believed not to be market related, the department through its Supply Chain Management bid committees will attempt to negotiate the offer with identified bidder/s to a reasonable amount. Bidders are not allowed to increase their tender offers during this process. 9. A Resolution of signatory form has been completed and signed by director/s or a letter bearing a letterhead of the tenderer has been attached (specific to this bid) to the bid submission; it must be duly signed by all directors and submitted the bid. Only a duly authorized official can sign the bid. 10. Prospective bidders must register on CSD prior submitting bids (open tenders). Any prospective bidder found to have Tax matters not in order with SARS (verified through CSD) during the evaluation process (after being given an opportunity to rectify tax matters) will be eliminated and not be considered further in the process. Preferred bidder/s will be afforded an opportunity to rectify their tax affairs within 7 days. A bidder that fails to rectify its tax matters with SARS will be eliminated. 11. **NOTE:** The amount reflected on the Form of Offer and Acceptance takes precedence over any other total amount indicated elsewhere in bidder's tender submission. If the Form of Offer and Acceptance has no value or figure, the bidder will be regarded as having made no offer. 12. The department reserves the right not to award the bid to the most favourable tenderer, if any of the situations occur: if it is not assisting in the advancement of designated groups; risk profile of the favourable firm is too high; the bidder has been awarded a considerable number of projects by the department or provincial government; has performed unsatisfactorily in the past, etc. 13. Bids shall not be awarded to Bidders appearing on the Health Department and/or National/Provincial Treasury Defaulters List. 14. In the event where the Technical Risk Analysis of the bidder who scored the highest points, indicates a commercial risk to the Client, the Client reserves the right to award the Bid to the next highest scorer of Bid points. 15. In the event where the recommended Bidder has failed to comply with the conditions as set out in the letter of award, the client shall notify the recommended Bidder of his/her failure to comply and recommend for award the next bidder that scored the highest points. The Conditions as set out in the letter of award are as follow: 1. Proof of having All risk, public liability and support insurances as stipulated in the contract. 2. Submission of a Construction Safety, Health and Environmental Plan. 3. Contract Guarantee (as selected in the tender document)
5.9	The number of paper copies of the signed contract to be provided by the employer is 1.
	The additional conditions of tender are:

	• Wherever a brand name is specified in this document (i.e., specifications, pricing schedule, bill of quantities or anywhere), the department requires an item similar/equivalent or better.
T.2.1	**List of returnable documents**
1	**Documentation to demonstrate eligibility to have tenders evaluated i.e.** *List all documentation to demonstrate eligibility to have a submission evaluated.* • Appropriate CIDB grading suitable for the works (as stated in 4.1).
2	**Returnable Schedules required for tender evaluation purposes.** The tenderer must fully and appropriately complete and sign the following returnable schedules as relevant: • SBD 1 (Mandatory) • SBD 4 (Mandatory) • SBD 6.1 PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022 • Proposed amendments and qualifications. (Mandatory) • Schedule of Proposed Subcontractors • Protection of personal content: Consent POPIA (Mandatory) • Valid CIDB Certificate of Tenderer (Mandatory) • Valid Department of Labour COIDA Letter of Good Standing Certificate and/or FEM. (Mandatory) • Proof of Specific Goals Claimed • Proof of Registration on the National Treasury Central Supplier Data Base (CSD) (Mandatory) • Part C1.1 Form of Offer and Acceptance (Mandatory) • Part C1.2 Contract Data (Mandatory) • Part C2.2 Bills of Quantities **(Handwritten Priced. Not typed)** (Mandatory) • Compulsory enterprise questionnaire (In the case of a joint venture, separate enterprise questionnaires in respect of each partner must be completed and submitted). (Mandatory) • Record of addenda issued (Only if addenda is issued) (Mandatory) • Resolution for Signatory (Mandatory) • Certificate of authority for joint ventures (Only where the tender/ quotation is submitted by a joint venture) (Mandatory) • Proof of Registration on the National Treasury Central Supplier Data Base (CSD). A CSD Report for a contractor with valid and correct information (Mandatory)
3	**Other documents required for tender evaluation purposes.** The tenderer must provide the following returnable documents: • List of Projects completed of a similar nature (For Health Departments as end-user) with details of the Clients, Scope, Values, and dates of completion, with copies of Practical, Works and or Final Completion Certificates attached as Portfolio of evidence. (Mandatory) • List of Resources, Plant & Equipment to render the service.
4	Only authorized signatories may sign the original and all copies of the tender offer where required. In the case of a ONE-PERSON CONCERN submitting a tender, this shall be clearly stated. In the case of a **COMPANY** submitting a tender, include a copy of a **resolution by its board of directors** authorizing a director or other official of the company to sign the documents on behalf of the company. In the case of a **CLOSE CORPORATION** submitting a tender, include a copy of a **resolution by its members** authorizing a member or other official of the corporation to sign the documents on each member's behalf. In the case of a **PARTNERSHIP** submitting a tender, **all the partners** shall sign the documents, unless one partner or a group of partners has been authorized to sign on behalf of each partner, in which case **proof of such authorization** shall be included in the Tender. In the case of a **JOINT VENTURE/CONSORTIUM** submitting a tender, include **a resolution of each company** of the joint venture together with a **resolution by its members** authorizing a member of the joint venture to sign the documents on behalf of the joint venture. **Accept that failure to submit proof of authorization to sign the tender shall result in the tender offer being regarded as non-responsive.**

5	**Information and data to be completed in all respects** Accept that tender offers, which do not provide all the data or information requested completely and, in the form, required, may be regarded by the employer as nonresponsive.
6	**Canvassing and obtaining of additional information by tenderers** The Tenderer shall not make any attempt either directly or indirectly to canvass any of the Employer's officials or the Employer's agent in respect of his tender, after the opening of the tenders but prior to the Employer arriving at a decision thereon. The Tenderer shall not make any attempt to obtain particulars of any relevant information, other than that disclosed at the opening of tenders.
7	**Prohibitions on awards to persons in service of the state** The Employer is prohibited to award a tender to a person - a) who is in the service of the state; or *b)* if that person is not a natural person, of which any director, manager, principal shareholder or stakeholder is a person in the service of the state; or *c)* a person who is an advisor or consultant contracted with the Department or municipal entity. **In the service of the state** means to be - a) a member of:- *a* any municipal council; *b* any provincial legislature; or *c* the National Assembly or the National Council of Provinces; *d)* a member of the board of directors of any municipal entity; *e)* an official of any Department or municipal entity; *f)* an employee of any national or provincial department; *g)* provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999); *h)* a member of the accounting authority of any national or provincial public entity; or *i)* an employee of Parliament or a provincial legislature. In order to give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in part T2 of this procurement document must be completed.
8	**Awards to close family members of persons in the service of the state** Accept that the notes to the Employer's annual financial statements must disclose particulars of any award of more than R2000 to a person who is a spouse, child, or parent of a person in the service of the state (defined in clause 8 above), or has been in the service of the state in the previous twelve months, including - *a)* the name of that person; *b)* the capacity in which that person is in the service of the state; and *c)* the amount of the award. In order to give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in part T2 of this procurement document must be completed.
9	**Respond to requests from the tenderer** The employer will respond to requests for clarification up to **5 (five) working days** before the tender closing time.
10	**Opening of tender submissions** Tenders will be opened immediately after the closing time for tenders
11	**Scoring quality / functionality:** Not applicable to this tender

12	**Cancellation and re-invitation of tenders** An organ of state may, prior to the award of the tender, cancel the tender if- (a) due to changed circumstances, there is no longer a need for the services, works or goods requested; or (b) funds are no longer available to cover the total envisaged expenditure; or (c) no acceptable tenders are received. (d) Tender validity period has expired. (e) Gross irregularities in the tender processes and/or tender documents. (f) No market related offer received (after attempts of negotiation processes) Where applicable, the decision to cancel the tender will be published in on the Tender Notice Board of the SCM Department and if applicable, on the CIDB website and in the Tender Bulletin or the media in which the original tender invitation as advertised.
13	Dispute resolution mechanism will be done through the SCM Department and thereafter the **Adjudication** route**.**
14	The department, when it takes action against the tenderer or person awarded the contract on a fraudulent basis, considers the provisions of Regulation 14: The remedies provided for in Preferential Procurement Regulations 2022 do not prevent an institution from instituting remedies arising from any other prescripts or contract.
15	Where the employer terminates the contract due to default of the contractor in whole or in part, the employer may decide to: a) Refer the breach in contract to the **CIDB** for investigation as a breach of the **CIDB Code of Conduct** in terms of the **CIDB Regulations**; or b) may impose a restriction penalty on the contractor in terms of Section 14 of the Preferential Procurement Regulations. The outcomes of such investigations in terms of both the CIDB Regulations and the Preferential Procurement Regulations may prohibit the contractor from doing business with the public sector for a period not exceeding 10 years.

2. PART T2 - RETURNABLE DOCUMENTS

ASSESMENT OF STAGE 1 ADMINISTRATIVE REQUIRMENTS AND MANDATORY REQUIREMENTS:

The bidder shall not proceed to the next stage of evaluation if the bidder fails to submit all the mandatory information as listed here below:
BIDDER TO INDICATE BELOW IF MANDATORY DOCUMENTS WERE SUBMITTED WITH TENDER:

16	**MANDATORY DOCUMENT TO BE SUBMITTED WITH BID:**	**YES**	**NO**
	SBD 1 Part of invitation to bid and terms and conditions for bidding		
	SBD 4 Declaration of interest		
	SBD 6.1 Preference points claim form in terms of the Preferential procurement regulations 2022		
	Proposed amendments and qualifications		
	Protection of personal content: Consent		
	Valid CIDB Certificate of Tenderer		
	Valid Department of Labour COIDA Letter of Good Standing Certificate and/or FEM		
	Part C1.1 Form of Offer and Acceptance (Fully signed and completed)		
	Part C1.2 Contract Data		
	Part C2.2 Bills of Quantities (Fully priced) **(Handwritten Priced. Not typed)**		
	Compulsory enterprise questionnaire (In the case of a joint venture, separate enterprise questionnaires in respect of each partner must be completed and submitted).		
	Record of addenda issued (Only if addenda is issued)		
	Resolution for Signatory		
	Certificate of authority for joint ventures (Only where the tender/ quotation is submitted by a joint venture)		
	Proof of Registration on the National Treasury Central Supplier Data Base (CSD) Full CSD report)		
	List of Projects completed of a similar nature (For Health Departments as end-user) with details of the Clients, Scope, Values, and dates of completion, with copies of Practical, Works and or Final Completion Certificates attached as Portfolio of evidence.		
	List of resources, Plant & Equipment to execute the service.		

2.1. T2.1 List of Returnable Documents

The tenderer must complete the following returnable documents:

1 Returnable Schedules required for bid/quotation evaluation purposes. (Mandatory Items)

- SBD 1
- SBD 4
- SBD 6.1 PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022
- Proposed amendments and qualifications.
- Schedule of Proposed Subcontractors
- Protection of personal content: Consent
- Valid CIDB Certificate of Tenderer
- Valid Department of Labour COIDA Letter of Good Standing Certificate and/or FEM.
- Proof of Specific Goals Claimed
- Part C1.1 Form of Offer and Acceptance
- Part C1.2 Contract Data
- Part C2.2 Bills of Quantities
- Compulsory enterprise questionnaire (In the case of a joint venture, separate enterprise questionnaires in respect of each partner must be completed and submitted).
- Record of addenda issued (Only if addenda is issued)
- Resolution for Signatory
- Certificate of authority for joint ventures (Only where the tender/ quotation is submitted by a joint venture)
- Proof of Registration on the National Treasury Central Supplier Data Base (CSD)

2 Other documents required for bid/quotation evaluation purposes.

- List of Projects completed of a similar nature (For Health Departments as end-user) with details of the Clients, Scope, Values, and dates of completion, with copies of Practical, Works and or Final Completion Certificates attached as Portfolio of evidence.
- List of resources, Plant & Equipment to execute the service.

3 Returnable Schedules that will be incorporated into the contract

- SBD 1
- SBD 4
- SBD 6.1 PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022
- Proposed amendments and qualifications.
- Schedule of Proposed Subcontractors
- Protection of personal content: Consent
- Valid CIDB Certificate of Tenderer
- Valid Department of Labour COIDA Letter of Good Standing Certificate and/or FEM.
- Proof of Specific Goals Claimed
- Part C1.1 Form of Offer and Acceptance
- Part C1.2 Contract Data
- Part C2.2 Bills of Quantities

2.1. SBD 1 – PART A - INVITATION TO BID

PART A
INVITATION TO BID

SBD 1

CSD registered service providers (CIDB Grading of CIDB 7GB Contractor or higher) are hereby invited to bid for the services required by the Eastern Cape Department of Health					
BID NUMBER:	**SCMU3-23/24-0738-HO**	CLOSING DATE:	**19 April 2024**	CLOSING TIME:	**11:00**
DESCRIPTION:	**Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District) BID NO: SCMU3-23/24-0738-HO**				
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT					
EASTERN CAPE DEPARTMENT OF HEALTH: SUPPLY CHAIN MANAGEMENT OFFICE, situated at the following address: GLOBAL LIFE CENTRE, SCM UNIT, C/O PHALO AVENUE AND R63 (OPPOSITE ENGINE GARAGES), BHISHO					
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:		**TECHNICAL ENQUIRIES MAY BE DIRECTED TO:**			
CONTACT PERSON	**Ms. T Notshe**	CONTACT PERSON	**Ms. T Notshe**		
TELEPHONE NUMBER	**040 608 9501**	TELEPHONE NUMBER	**040 608 9501**		
E-MAIL ADDRESS	**thabisa.notshe@echealth.gov.za**	E-MAIL ADDRESS	**thabisa.notshe@echealth.gov.za**		
SUPPLIER INFORMATION					
NAME OF BIDDER **(Entity as registered on CSD)**					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		**OR**	CENTRAL SUPPLIER DATABASE No:	MAAA

An SBD 6.1 PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022 IS TO BE SUBMITTED TO CLAIM DEPARTMENTAL SPECIFIC GOAL POINTS

a) *Service providers must submit proof of its Specific Goals points claimed / status of contributor.*
b) *The Specific Goals supporting documents required to verify claimed points are in line with the specified requirements include:*
   - *Historically Disadvantaged Individuals Ownership: Proof of ownership (CIPRO certificate) with id no.*
   - *Women Ownership: Ownership: Proof of ownership (CIPRO certificate) with id no.*
   - *Youth Ownership: Ownership: Proof of ownership (CIPRO certificate) with id no.*
   - *Disability Ownership: Proof of ownership (CIPRO certificate) with valid medical documentary proof.*
   - *Military Veterans Ownership: Proof of ownership (CIPRO certificate) with valid proof of veteran status.*
   - *Locality Ownership: Proof of business address (municipal account or valid lease agreement)*
   - *Updated CSD report*

NAME OF BIDDER (Entity as registered on CSD)

Ownership Details (as registered on CSD)

Name & Surname	*Describe Category of Ownership (HDI. Women, Youth, Disabled, Military Veteran)*	*ID No.*	*% Percentage of Ownership*
TOTAL OWNERSHIP AS REGISTERED ON CSD			

2.2. SBD 1 - PART B – TERMS AND CONDITIONS FOR BIDDING

PART B
TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.

1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.**

1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

1.4. **THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM.**

2. TAX COMPLIANCE REQUIREMENTS

2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.

2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.

2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.

2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.

2.5 SUBMISSION OF A COIDA LETTER OF GOOD STANDING FROM DEPARTMENT OF LABOUR AND/OR FEM IS MANDATORY

2.6 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED; EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.

2.7 WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.

2.8 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

3. SPECIAL CONDITIONS OF BID

3.1 Due Diligence In-Loco Inspection of the Bidder / or JV. As part of its due diligence obligations, the Department of Health reserves the right to do an In-Loco inspection of the offices and premises of the Bidder / or JV to verify the following:

1) The existence of the business enterprise as declared on the SBD1 form.

2) The existence of the resources including plant & equipment, to render the services.

3) The existence of projects completed by the bidder/JV as declared.

3.2. In the event where the In-Loco Inspections find inconsistencies and or misrepresentation in terms of what has been declared in the Bid submission, the Bidder will be notified of such inconsistencies and or misrepresentations in writing and allowed 7 (seven) days to rectify and or clarify such.

3.3. As part of the due diligence obligations, a Technical Risk analysis of all bids including the Bills of Quantities will be carried out by the Bid Evaluation Committee with the support of the Built Environment Professional Team, to check for mistakes in the Pricing schedules, BOQ's, inconsistencies, misrepresentations, and to confirm whether the tender price submitted is market related and does not pose a commercial risk to the Client.

3.4. This Technical Risk Analysis includes the analysis of the In-Loco inspection findings.

3.5 In the event where the Technical Risk Analysis of the bidder who scored the highest points, indicates a commercial risk to the Client, the Client reserves the right to award the Bid to the next highest scorer of Bid points.

3.6. The Technical Risk Analysis and In-Loco inspections can be carried out anytime during or after Stages 1&2

evaluation, before award.

3.7. In the event where the recommended Bidder has failed to comply with the conditions as set out in the letter of award, the client shall notify the recommended Bidder of his/her failure to comply and recommend for award the next bidder that scored the highest points. The Conditions as set out in the letter of award are as follow:

i. Proof of having All risk, public liability and support insurances as stipulated in the contract.
ii. Submission of a Construction Safety, Health and Environmental Plan.
iii. Contract Guarantee (as selected in the tender document)

3.8. An appointment letter/acceptance letter does not constitute a contract or commencement date of a contract. The recommended Bidder is required to sign an official contract with the Department.

3.9. JBCC 6.2 State Clauses apply to this Bid & Contract.

3.10. Bids shall not be awarded to Bidders appearing on the Health Department and/or National/Provincial Treasury Defaulters List.

3.11. A fixed construction guarantee of 10% must be provided as security, in the event that the considered bidder fails to provide this security, the client will consider the next highest scoring bidder for award.

3.12. The following governs the employment of SMME subcontractors:

1. SMME Subcontract

The Contractor shall appoint all SMME subcontractors as domestic subcontractors in terms of an agreement that provides for fair and equitable conditions of contract compatible with the JBCC PBA Edition 6.2 (May 2018). All work and the associated risks related to SMME subcontractors shall be the direct responsibility of the Contractor.

2. SMME Subcontract Target

Thirty Percent (30%) of the Tender Value (excluding Socio Economic Value, CPAP/escalation, Contingency, OHS, Preliminaries, CIDB B.U.I.L.D Program and Value-Added Tax (VAT)) must be executed by SMMEs. It is compulsory for the Principal Contractor to achieve this target as the principal contractors performance against this target will be monitored.

Contractors will be required to supply verified monthly statements/schedules (verified by their auditors) indicating the % achieved for that month. A cumulative schedule also needs to be maintained for each month that has passed.

3. A SMME subcontractor is defined as follows:

- A targeted enterprise;
- A business concern operating in any business sector and which complies with the qualitative and quantitative criteria outlined in the Schedule contained in the National Small Business Act (Act No. 102 of 1996);
- An entity which must have an active registration status with the CIDB, targeted CIDB Grade designations 1 to 6;

4. Procurement and contracting of SMME subcontractors

The Appointed contractor must take note that the P&G main section document allow for the appointment of an SMME Mentor or Mentors if more than one are require.

After the Award of the Contract, the Contractor will have to start the process of procuring and subcontracting SMME subcontractors to achieve the tendered SMME Participation Goal of 30%. This contracting process for subcontracting SMMEs must commence after the commencement of the Contract Period and shall be completed prior to the commencement of the Contraction Period. It is a condition that the Employer shall not give the Contractor possession of site until the above process is and the appointment of SMME subcontractors is complete. The Contractor shall take due cognizance to also programme this SMME contracting process in its detailed construction programme.

The SMME Subcontractors must be procured as follows:

4.1. The identification of potential SMME's subcontractors to tender for the SMME packages shall be determined by the recognized community representatives/ structures, involving but not be limited by the Local Ward Councilor, the Social Facilitator, and the PSC.

4.2. A competitive tender process obtaining at least three tenders from SMME subcontractors for each SMME package.

4.3. The SMME package documents will be prepared by the representative PSP's in conjunction with the Contract. The PSP's will provide the measured works portion of the tender document, to which the Contractor shall include his conditions of subcontract and requirements.

4.4. The tender documents will issued to the SMME subcontractors to tender.

4.5. The Contractor shall facilitate a mandatory briefing session with the invited SMME subcontractors. The briefing session must be attended by the representative PSP's including the OHS Agent and social facilitator.

4.6. The Contractor shall provide assistance to the prospective SMMES and ensure;

4.6.1. They understand the liabilities and responsibilities of the subcontract.

4.6.2. Scope of the SMME package

4.6.3. Procedures for submitting tenders.

4.6.4. Understanding the pricing and implications of the tendered rates.

4.6.5. Procedures and basis of tender adjudication.

4.6.6. Subcontract conditions and implications when awarded.

4.7. Adjudication

4.7.1. Contractor to receive all tenders at a specific location, in sealed tender submissions, placed in a tender box provided by the Contractor prior to the closing date and time. Late tenders will not be considered.

4.7.2. Contractor to maintain a tender submission register, recording tender receipt.

4.7.3. Tenders to be evaluated by the Contractor in terms of the tender conditions and submit a draft tender evaluation to the PA within 5 working days of the closing of tenders.

4.7.4. The PA will have the right to

4.7.4.1. Interview the tenderer

4.7.4.2. Clarify any aspect of the tender

4.7.4.3. Verify the eligibility of the tenderer

4.7.4.4. Conduct a rate analysis to clarify rates and prices.

4.7.5. The Contractor shall provide reasonable opportunity to tenderers, to correct patent errors, without altering the total tendered sum.

4.8. Award of tender

The Contractor shall

4.8.1. Notify unsuccessful tenderers

4.8.2. Award/ appoint the SMME subcontractor

4.8.3. Compile and sign the SMME subcontract agreements.

3.13. The information contained in this tender document is available on computer software and can be supplied via E-mail after the compulsory pre-tender site meeting via DoH Supply Chain Unit; it is the responsibility of the tenderer to ensure that the information received via these media is correct and consistent with the actual printed documents or addendum(s) issued to each tenderer. In the event of any differences between the printed tender documents or faxed addendum(s) issued to tenderers and similar information provided by E-mail the former will always be regarded as correct. It is the tenderers responsibility to check all formulae and extensions etc. in the excel Bills of Quantities (Main and M&E).

SIGNATURE OF BIDDER: **DATE:**

…… ……

CAPACITY UNDER WHICH THIS BID IS SIGNED: ……
(Proof of authority must be submitted e.g., company resolution)

2.3. Compulsory Enterprise Questionaire

Compulsory Enterprise questionnaire

The following particulars must be furnished. In the case of a joint venture, separate enterprise questionnaires in respect of each partner must be completed and submitted.

Section 1: Name of enterprise: . . . . . .

Section 2: VAT registration number, if any: . . . . . .

Section 3: CIDB registration number, if any: . . . . . .

Section 4: Particulars of sole proprietors and partners in partnerships

Name*	**Identity number***	**Personal income tax number***

***** *Complete only if sole proprietor or partnership and attach separate page if more than 3 partners*

Section 5: Particulars of companies and close corporations

Company registration number . . . . . .

Close corporation number . . . . . .

Tax reference number . . . . . .

Section 6: The attached SBD 4 must be completed for each tender and be attached as a tender requirement.

Section 7: The attached SBD 6.1 must be completed for each tender and be attached as a requirement.

The undersigned, who warrants that he / she is duly authorized to do so on behalf of the enterprise:

i) authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are in order;

ii) confirms that the neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004; iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;

iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and

iv) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed ..... Date .....

Name ..... Position .....

2.4. SBD 4

SBD 4

BIDDER'S DISCLOSURE

1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. Bidder's declaration

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest[1] in the enterprise, employed by the state? **YES/NO**

2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

Full Name	**Identity Number**	**Name of State institution**

2.2 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? **YES/NO**

2.2.1 If so, furnish particulars:

……

……

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract? **YES/NO**

2.3.1 If so, furnish particulars:

……

[1] ***the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.***

……

3 DECLARATION

I, the undersigned, (name)……. in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

3.1 I have read and I understand the contents of this disclosure;

3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;

3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium[2] will not be construed as collusive bidding.

3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.

3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.

3.6 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.
I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

…… ……
Signature Date

…… ……
Position Name of bidder

[2] ***Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.***

2.5. RECORD OF ADDENDA TO BID DOCUMENTS

BID DESCRIPTION	**Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District)**
SCMU NUMBER	**SCMU3-23/24-0738-HO**

I / We confirm that the following communications received from the Department of Health before the submission of this tender offer, amending the tender documents, have been taken into account in this bid offer: (Attach additional pages if more space is required)

Item	Date	Title or Details	No. of Pages
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Attach additional pages if more space is required.

Signed ..... Date .....

Name ..... Position .....

Tenderer .....

2.6. PROPOSED AMENDMENTS AND QUALIFICATIONS

The Tenderer should record any deviations or qualifications he may wish to make to the tender documents in this Returnable Schedule. Alternatively, a tenderer may state such deviations and qualifications in a covering letter to his tender and reference such letter in this schedule. The Tenderer's attention is drawn to clause 5.8 of SANS 10845-3 regarding the employer's handling of material deviations and qualifications.

BID DESCRIPTION	**Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District)**
SCMU NUMBER	**SCMU3-23/24-0738-HO**

Page	Clause /Item	Proposal

The undersigned, who warrants that she/ he is duly authorised to do so on behalf of the enterprise, confirms that the content of this schedule that presented by the tenderer are within my personal knowledge and are to the best of my knowledge both true and correct

Signed _____ Date _____

Name _____ Position _____

Enterprise name

_____

2.7. RESOLUTION FOR SIGNATORY

BID DESCRIPTION	**Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District)**
SCMU NUMBER	**SCMU3-23/24-0738-HO**

A. CERTIFICATE OF AUTHORITY FOR SIGNATORY

Signatory for companies shall confirm their authority hereto by attaching a duly signed and dated copy of the relevant resolution of the board of directors to this form or on company letter head.

An example is given below:

"By resolution of the board of directors passed at a meeting held on _____

Mr/Ms_____, whose signature appears below, has been duly authorised to

sign all documents in connection with the tender for Contract No. _____

and any Contract which may arise there from on behalf of (Block Capitals) _____

_____

_____

SIGNED ON BEHALF OF THE COMPANY: _____

IN HIS/HER CAPACITY AS: _____

DATE:_____

SIGNATURE OF SIGNATORY: _____

WITNESSES:

DIRECTOR (NAMES)		SIGNATURE	
DIRECTOR (NAMES)		SIGNATURE	
DIRECTOR (NAMES)		SIGNATURE	
DIRECTOR (NAMES)		SIGNATURE	
DIRECTOR (NAMES)		SIGNATURE	
DIRECTOR (NAMES)		SIGNATURE	

If you cannot complete this form, attach a separate sheet (in a company letter head, project specific and signed by all directors):

B. CERTIFICATE OF AUTHORITY FOR JOINT VENTURES

This Returnable Schedule is to be completed by joint ventures.

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorize Mr/Ms . . . ., authorized signatory of the company . . . . , acting in the capacity of lead partner, to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

BID DESCRIPTION	**Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District)**
SCMU NUMBER	**SCMU3-23/24-0738-HO**

NAME OF FIRM	**Percentage Split in Consortia/JV as per Consortia/JV Agreement and Specific Goal Points Claimed**	**ADDRESS**	**DULY AUTHORISED SIGNATORY**
Lead partner: …… …… ……	……%		Signature. . …… Name:……..…….... Designation……
…… …… ……	……%		Signature. . …… Name:……..…….... Designation……
…… …… ……	……%		Signature. . …… Name:…… Designation……
…… …… ……	……%		Signature. . …… Name:…… Designation……
…… …… ……	……%		Signature. . …… Name:…… Designation……

2.8. SCHEDULE OF PROPOSED SUBCONTRACTORS

BID DESCRIPTION	**Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District)**
SCMU NUMBER	**SCMU3-23/24-0738-HO**

We notify you that it is our intention to employ the following Subcontractors for work in this contract. The Subcontractors will all be CIDB registered and their CIDB Registration number shall be submitted below. This should also be declared on **SBD 6.1 form.**

If we are awarded a contract, we agree that this notification does not change the requirement for us to submit the names of proposed subcontractors in accordance with requirements in the contract for such appointments. If there are no such requirements in the contract, then your written acceptance of this list shall be binding between us.

We confirm that all subcontractors who are or to be contracted are registered on Central Supplier Database (CSD).

No.	**Name and address of proposed Subcontractor**	**Sub-Contractor CIDB Grading**	**Sub-Contractor CIDB No.**	**Nature, extent of work, Year completed, Value of sub-contract**	**Contact details:** **Name of person and phone No.**
1					
2					
3					
4					
5					

The undersigned, who warrants that she/ he is duly authorised to do so on behalf of the enterprise, confirms that the content of this schedule that presented by the tenderer are within my personal knowledge and are to the best of my knowledge both true and correct and noted and agreed that:

This information is required as part of the MANDATORY returnable schedules, which shall not be used as part of elimination evaluation criterion during Stage 1 Admin Compliance, but this information will be checked and verified as part of due diligence Technical Risk Analysis and during the In-Loco inspections, before Adjudication and award, and should the findings indicate a commercial risk to the Client, the bid shall not be awarded to the highest scorer bidder.

Signed _____ Date _____

Name _____ Position _____

Enterprise name

_____

2.9. SBD 6.1

SBD 6.1

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

Bid Description:	**Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District)**
Tender No:	**SCMU3-23/24-0738-HO**

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

---

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 To be completed by the organ of state

(*delete whichever is not applicable for this tender*).

The applicable preference point system for this tender is the 80/20 preference point system.

The lowest/ ~~highest~~ acceptable tender will be used to determine the accurate system once tenders are received.

1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

(a) Price; and

(b) Specific Goals.

1.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80
SPECIFIC GOALS	20
Total points for Price and SPECIFIC GOALS	**100**

1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

(a) **"tender"** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;

(b) **"price"** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;

(c) **"rand value"** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

(d) **"tender for income-generating contracts"** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and

(e) **"the Act"** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. **POINTS AWARDED FOR PRICE**

3.1.1 **THE 80/20 PREFERENCE POINT SYSTEMS**

A maximum of 80 points is allocated for price on the following basis:

80/20

$$Ps = 80\left(1 - \frac{Pt - P\,min}{P\,min}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

3.2. **FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT**

3.2.1. **POINTS AWARDED FOR PRICE**

A maximum of 80 points is allocated for price on the following basis:

80/20

$$Ps = 80\left(1 + \frac{Pt - P\,max}{P\,max}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmax = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

(a) an invitation for tender for income-generating contracts, that either the 80/20 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or

(b) any other invitation for tender, that either the 80/20 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

then the organ of state must indicate the points allocated for specific goals for both the 80/20 preference point system.

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

(Note to organs of state: Where either the 80/20 preference point system is applicable, corresponding points must also be indicated as such.

***Note to tenderers: The tenderer must indicate how they claim points for each preference point system.*)**

The specific goals allocated points in terms of this tender	**Number of points allocated (80/20 system) (To be completed by the organ of state)**	**Number of points claimed (80/20 system) (To be completed by the tenderer)**
Historically Disadvantaged Individuals Ownership	20% (4)	
Women Ownership	20% (4)	
Youth Ownership	20% (4)	
Disability Ownership	20% (4)	
Military Veterans Ownership	10% (2)	
Locality	10% (2)	
TOTAL	100% (20)	

CONSORTIA / JOINT VENTURES

***** In the event that Specific Goal Points are claimed for members by **Consortia / Joint Ventures** refer to 2.10. SPECIFIC GOALS POINT – GUIDING WORKING PAPERS TO ASSIST THE BIDDER

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm…….

4.4. Company registration number: ……...

4.5. TYPE OF COMPANY/ FIRM

 Partnership/Joint Venture / Consortium

- ☐ One-person business/sole propriety
- ☐ Close corporation
- ☐ Public Company
- ☐ Personal Liability Company
- ☐ (Pty) Limited
- ☐ Non-Profit Company
- ☐ State Owned Company

[TICK APPLICABLE BOX]

4.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

i) The information furnished is true and correct;

ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;

iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –

(a) disqualify the person from the tendering process;

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

(d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and

(e) forward the matter for criminal prosecution, if deemed necessary.

…… **SIGNATURE(S) OF BIDDER(S)**
SURNAME AND NAME: ……. **DATE:** ……
ADDRESS: ……

2.10.SPECIFIC GOALS POINT - GUIDING WORKING PAPERS TO ASSIST THE BIDDER

Table 1: Consortia/Joint Venture Percentage Split

In the event that Specific Goal Points are claimed for members by consortia / joint ventures, the following information must be furnished in order to be entitled to the points claimed in respect of the member:
(If more than 3 Members the Bidder can submit a comprehensive table for all Members as per below example)

	Consortia/JV Member 1 **Company Name:** **……..…** **……**	**Consortia/JV Member 2** **Company Name:** **…….** **……..**	**Consortia/JV Member 3** **Company Name:** **……** **……..**	**TOTAL**
Percentage Split in Consortia/JV as per Consortia/JV Agreement and Certificate of authority	**……%**	**……%**	**……%**	**100%**

Table 2: Consortia/Joint Venture Specific Goal Points Claim

In the event that Specific Goal Points are claimed for members by consortia / joint ventures, the following information must be furnished in order to be entitled to the points claimed in respect of the member:
(If more than 3 Members the Bidder can submit a comprehensive table for all Members as per below example)

The specific goals allocated points in terms of this tender	**Number of points allocated (80/20 system) (To be completed by the organ of state)**	**JV/Consortia Member 1** **Company Name:** **……..…** **……** **Number of points claimed (80/20 system)**	**JV/Consortia Member 2** **Company Name:** **…….** **……..** **Number of points claimed (80/20 system)**	**JV/Consortia Member 3** **Company Name:** **……** **……..** **Number of points claimed (80/20 system)**	**Total number of points claimed by JV/Consortia**
Historically Disadvantaged Individuals Ownership	20% (4)				
Women Ownership	20% (4)				
Youth Ownership	20% (4)				
Disability Ownership	20% (4)				
Military Veterans Ownership	10% (2)				
Locality	10% (2)				
TOTAL	100% (20)				

Table 3: Detailed description and definition of various categories of the specific goal points that can be claimed.

No.	Detailed description and definition of various categories	Portfolio of Evidence as part of the returnables
1	**Historically Disadvantaged Individuals Ownership:** [Historically Disadvantaged Individual (HDI). Means a South African citizen who, due to the apartheid policy that had been in place, had no franchise in national elections prior to the introduction of the Constitution of the Republic of South Africa, 1983 (Act No. 110 of 1983) or the Constitution of the Republic of South Africa, 1993 (Act No. 200 of 1993) ("The Interim Constitution") and /orWho is a female; and/orWho has a disability]. A South African ID number is a 13-digit number which is defined by the following format: YYMMDDSSSSCAZ. • The first 6 digits (YYMMDD) are based on your date of birth. 20 February 1992 is displayed as 920220. • The next 4 digits (SSSS) are used to define your gender. Females are assigned numbers in the range 0000-4999 and males from 5000-9999. • The next digit (C) shows if you're an SA citizen status with 0 denoting that you were born a SA citizen and 1 denoting that you're a permanent resident.	1)Proof of ownership (CIPRO certificate) with id no. 2)Proof of ownership (CSD report) with id no. 3)Certified copy of ID of all owners.
2	**Women Ownership**: A South African ID number is a 13-digit number which is defined by the following format: YYMMDDSSSSCAZ. • The first 6 digits (YYMMDD) are based on your date of birth. 20 February 1992 is displayed as 920220. • The next 4 digits (SSSS) are used to define your gender. Females are assigned numbers in the range 0000-4999 and males from 5000-9999.	1)Proof of ownership (CIPRO certificate) with id no. 2)Proof of ownership (CSD report) with id no. 3)Certified copy of ID of all owners.
3	**Military Veterans Ownership:** According to the 2011 Military Veterans act, a military veteran is any South African who rendered military service to any of the military organisations, former statutory and liberation armies, which were involved on all sides of South Africa's liberation war from 1960 to 1993; served in the then Union Defence Force.	1)Proof of ownership (CIPRO certificate) with id no. with valid proof of veteran status. 2)Proof of ownership (CSD report) with id no. with valid proof of veteran status. 3)Certified copy of ID of all owners.

4	**Disability Ownership:** The CRPD (Convention on the Rights of Persons with Disabilities) defines persons with disabilities to include those who have long term physical, mental, intellectual or sensory impairments, which in interaction with various barriers may hinder their full and effective participation in society on an equal basis.	1)Proof of ownership (CIPRO certificate) with id no. with valid medical documentary proof. 2)Proof of ownership (CSD report) with id no. with valid medical documentary proof. 3)Certified copy of ID of all owners.
5	**Youth Ownership:** Who are Youth in South Africa? The national Youth Policy defines youth as any persons between the ages of 14 and 35 years.	1)Proof of ownership (CIPRO certificate) with id no. 2)Proof of ownership (CSD report) with id no. 3)Certified copy of ID of all owners.
6	**Locality Ownership:** Proof of business address (municipal account or valid lease agreement) (Eastern Cape Contractors can claim 2 point)	1) Copy of Municipal billing account with an address in the Eastern Cape Province. 2)Copy of a Lease Agreement with an address in the Eastern Cape Province.

2.11. PROOF OF REGISTRATION ON THE NATIONAL TREASURY CENTRAL SUPPLIER DATABASE (CSD REPORT)

(ATTACH HERE)

2.12. VALID CIDB CERTIFICATE OF A TENDERER (ATTACH HERE)

2.13. VALID DEPARTMENT OF LABOUR COIDA LETTER OF GOOD STANDING CERTIFICATE AND/OR FEM

(ATTACH HERE)

2.14.PROOF OF SPECIFIC GOALS POINTS CLAIMED (ATTACH HERE)

Table 2: Detailed description and definition of various categories of the specific goal points that can be claimed.

No.	Detailed description and definition of various categories	Portfolio of Evidence as part of the returnables
1	**Historically Disadvantaged Individuals Ownership:** [Historically Disadvantaged Individual (HDI). Means a South African citizen who, due to the apartheid policy that had been in place, had no franchise in national elections prior to the introduction of the Constitution of the Republic of South Africa, 1983 (Act No. 110 of 1983) or the Constitution of the Republic of South Africa, 1993 (Act No. 200 of 1993) ("The Interim Constitution") and /orWho is a female; and/orWho has a disability]. A South African ID number is a 13-digit number which is defined by the following format: YYMMDDSSSSCAZ. • The first 6 digits (YYMMDD) are based on your date of birth. 20 February 1992 is displayed as 920220. • The next 4 digits (SSSS) are used to define your gender. Females are assigned numbers in the range 0000-4999 and males from 5000-9999. • The next digit (C) shows if you're an SA citizen status with 0 denoting that you were born a SA citizen and 1 denoting that you're a permanent resident.	1)Proof of ownership (CIPRO certificate) with id no. 2)Proof of ownership (CSD report) with id no. 3)Certified copy of ID of all owners.
2	**Women Ownership**: A South African ID number is a 13-digit number which is defined by the following format: YYMMDDSSSSCAZ. • The first 6 digits (YYMMDD) are based on your date of birth. 20 February 1992 is displayed as 920220. • The next 4 digits (SSSS) are used to define your gender. Females are assigned numbers in the range 0000-4999 and males from 5000-9999.	1)Proof of ownership (CIPRO certificate) with id no. 2)Proof of ownership (CSD report) with id no. 3)Certified copy of ID of all owners.
3	**Military Veterans Ownership:** According to the 2011 Military Veterans act, a military veteran is any South African who rendered military service to any of the military organisations, former statutory and liberation armies, which were involved on all sides of South Africa's liberation war from 1960 to 1993; served in the then Union Defence Force.	1)Proof of ownership (CIPRO certificate) with id no. with valid proof of veteran status. 2)Proof of ownership (CSD report) with id no. with valid proof of veteran status. 3)Certified copy of ID of all owners.

4	**Disability Ownership:** The CRPD (Convention on the Rights of Persons with Disabilities) defines persons with disabilities to include those who have long term physical, mental, intellectual or sensory impairments, which in interaction with various barriers may hinder their full and effective participation in society on an equal basis.	1)Proof of ownership (CIPRO certificate) with id no. with valid medical documentary proof.
		2)Proof of ownership (CSD report) with id no. with valid medical documentary proof.
		3)Certified copy of ID of all owners.
5	**Youth Ownership:** Who are Youth in South Africa? The national Youth Policy defines youth as any persons between the ages of 14 and 35 years.	1)Proof of ownership (CIPRO certificate) with id no.
		2)Proof of ownership (CSD report) with id no.
		3)Certified copy of ID of all owners.
6	**Locality Ownership:** Proof of business address (municipal account or valid lease agreement) (Eastern Cape Contractors can claim 2 point)	1) Copy of Municipal billing account with an address in the Eastern Cape Province.
		2)Copy of a Lease Agreement with an address in the Eastern Cape Province.

2.15. PROTECTION OF PERSONAL INFORMATION: CONSENT (POPIA)

PROTECTION OF PERSONAL INFORMATION: CONSENT (POPIA)

The introduction of The Protection of Personal Information Act (POPIA) ensures the regulation of personal information through its entire life cycle of collection, transfer, storing and deletion. As part of its business activities, the Department of Health obtains and requires access to personal data from a wide range of internal and external parties, including without limitation bidders who respond to requests for proposals that are published by the Department of Health from time to time. The Department of Health confirms that it shall process the information disclosed by Bidders for the purpose of evaluating and subsequently awarding/appointing a successful Bidder.

The Department of Health hereby states that it does not and will never modify, amend, or alter any personal information submitted to it by a Bidder. Not unless directed to do so by an order of court, the Department of Health does not disclose or permit the disclosure of any personal information to any Third Party without the prior written consent of the owner of the information.

Similarly, Bidders will from time-to-time access and be seized with information of a personal nature pertaining to the Department of Health. Some of the information may because of legislative compliances be available in the public domain, whilst some is uniquely provided to bidders in pursuit of procurement or other business-related activities. In this regard, the Department of Health requires that Bidders which receive or have access to its personal information, process any such information in a manner compliant with the requirements of the POPIA.

AGREEMENT

1. The Department of Health and the Bidder (the Parties) agree and undertake that upon obtaining and having access to personal information relating to either of them, they shall always ensure that:
   a) They process the information only for the express purpose for which it was obtained.
   b) Information is provided only to designated and authorized personnel who require the personal information to carry out the Parties' respective obligations in terms of the Procurement processes.
   c) They will introduce, and implement all reasonable measures ensure the protection of all personal information from unauthorized access and/or use.
   d) They have taken appropriate measures to safeguard the security, integrity, and authenticity of all personal information in its possession or under its control.
   e) The Parties agree that if personal information will be processed for any other purpose other than the one for which the accessing of the information was intended, explicit written consent will be obtained prior to the execution of such reason.
   f) The Parties shall carry out regular assessments to identify all reasonably foreseeable internal and external risks to the interception of personal information in its possession or under its control and shall implement and maintain appropriate controls in mitigation of such risks.

2. The Parties agree that they will promptly return or destroy any personal data in their possession or control which belongs to the other Party once it no longer serves the purpose for which it was collected, subject to any legal retention requirements. The information will be destroyed in such a manner that it cannot be reconstructed to its original form, linking it to any individual or organization.

3. Bidder's Obligations

a) The Bidder is required to notify the Information Officer of Department of Health, in writing as soon as possible after it becomes aware of or suspects any loss, unauthorized access or unlawful use of any of the Department of Health's personal information.
b) The Bidder shall, at its own cost, promptly and without delay take all necessary steps to mitigate the extent of the loss or compromise of personal data.
c) The Bidder shall be required to provide the Department of Health with details of the persons affected by the compromise and the nature and extent of the compromise, including details of the identity (if known) of the unauthorized person who may have accessed or acquired the personal data.
d) The Bidder undertakes to co-operate with any investigation relating to security breach which is carried out by or on behalf of Department of Health.

On behalf of the Bidder:

…….. ..……
Signature Date

…… ……
Position Name of the Bidder

On behalf of the Client:

…….. ..……
Signature Date

…….. ..……
Position Name of Client Representative

2.16. LIST OF PROJECTS PREVIOUSLY COMPLETED

BID DESCRIPTION	**Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District)**
SCMU NUMBER	**SCMU3-23/24-0738-HO**

I / We confirm that the following projects (technically complex, health facility related projects of a similar scope and value) were completed by the Bidder and or JV Partner which serves as portfolio of evidence that I/we have the relevant experience to complete this technically complex, health facility project. (additional pages may be added if more space is required)

Item	**Name of Implementing Agent and Health Department, Name of contactable person & phone number**	**Name of Bidder and or JV Partner**	**Project Description (as described on the Practical/ Works/ Final Completion Certificate attached)**	**Value of Project (Including VAT)**	**Copy of Practical/ Works/ Final Completion Certificate attached) YES / NO**	
1						
2						
3						

Attach additional pages if more space is required.

The undersigned, who warrants that she/ he is duly authorised to do so on behalf of the enterprise, confirms that the content of this schedule that presented by the tenderer are within my personal knowledge and are to the best of my knowledge both true and correct and noted and agreed that:

This information is required as part of the MANDATORY returnable schedules, which shall not be used as part of elimination evaluation criterion during Stage 1 Admin Compliance, but this information will be checked and verified as part of due diligence Technical Risk Analysis and during

the In-Loco inspections, before Adjudication and award, and should the findings indicate a commercial risk to the Client, the bid shall not be awarded to the highest scorer bidder.

Signed	.....	Date	.....
Name	.....	Position	.....
Name of Bidder & Names of JV Partners	.....		

2.17.COPIES OF PRACTICAL / WORKS / FINAL COMPLETION CERTIFICATES OF LIST OF PROJECTS PREVIOUSLY COMPLETED (ATTACH HERE)

The undersigned, who warrants that she/ he is duly authorised to do so on behalf of the enterprise, confirms that the content of this schedule that presented by the tenderer are within my personal knowledge and are to the best of my knowledge both true and correct and noted and agreed that:

This information is required as part of the MANDATORY returnable schedules, which shall not be used as part of elimination evaluation criterion during Stage 1 Admin Compliance, but this information will be checked and verified as part of due diligence Technical Risk Analysis and during the In-Loco inspections, before Adjudication and award, and should the findings indicate a commercial risk to the Client, the bid shall not be awarded to the highest scoring bidder.

Signed	.....	Date	.....
Name	.....	Position	.....
Name of Bidder & Names of JV Partners	.....		

2.18. DETAILS OF ALL RESOURCES, PLANT AND EQUIPMENT TO EXECUTE THIS SERVICE (ATTACH HERE)

The undersigned, who warrants that she/ he is duly authorised to do so on behalf of the enterprise, confirms that the content of this schedule that presented by the tenderer are within my personal knowledge and are to the best of my knowledge both true and correct and noted and agreed that:

This information is required as part of the MANDATORY returnable schedules, which shall not be used as part of elimination evaluation criterion during Stage 1 Admin Compliance, but this information will be checked and verified as part of due diligence Technical Risk Analysis and during the In-Loco inspections, before Adjudication and award, and should the findings indicate a commercial risk to the Client, the bid shall not be awarded to the highest scoring bidder.

Signed	.....	Date	.....
Name	.....	Position	.....
Name of Bidder & Names of JV Partners	.....		

3. THE CONTRACT

3.1. PART C1 - AGREEMENTS AND CONTRACT DATA

3.1.1. PART C1.1: FORM OF OFFER AND ACCEPTANCE

FORM OF OFFER AND ACCEPTANCE

Bid Description	**Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District)**
SCMU number	**SCMU3-23/24-0738-HO**

OFFER
The employer, identified in the acceptance signature block, has solicited offers to enter into a contract for the procurement of:

Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District)

The tenderer, identified in the offer signature block, has examined the documents listed in the tender data and addenda thereto as listed in the returnable schedules, and by submitting this offer has accepted the conditions of tender.

By the representative of the tenderer, deemed to be duly authorized, signing this part of this form of offer and acceptance, the tenderer offers to perform all of the obligations and liabilities of the contractor under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the conditions of contract identified in the contract data.

THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VALUE ADDED TAX IS

……

……

……Rand (in words);

R …….(in figures) (or

other suitable wording)

This offer may be accepted by the employer by signing the acceptance part of this form of offer and acceptance and returning one copy of this document to the tenderer before the end of the period of validity stated in the tender data, whereupon the tenderer becomes the party named as the contractor in the conditions of contract identified in the contract data.

Signature
……
Name
……...
Capacity
……...
for the tenderer
……...
(Name and address of organization)
Name and signature
of witness ……..… ….. Date ……

ACCEPTANCE

By signing this part of this form of offer and acceptance, the employer identified below accepts the tenderer's offer. In consideration thereof, the employer shall pay the contractor the amount due in accordance with the conditions of contract identified in the contract data. Acceptance of the tenderer's offer shall form an agreement between the employer and the tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract, are contained in:

Part C1 Agreements and contract data, (which includes this agreement)
Part C2 Pricing data
Part C3 Scope of work.
Part C4 Site information and drawings and documents or parts thereof, which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the tender data and any addenda thereto as listed in the returnable schedules as well as any changes to the terms of the offer agreed by the tenderer and the employer during this process of offer and acceptance, are contained in the schedule of deviations attached to and forming part of this form of offer and acceptance. No amendments to or deviations from said documents are valid unless contained in this schedule.

The tenderer shall within 3 weeks after receiving a completed copy of this agreement, including the schedule of deviations (if any), contact the employer's agent (whose details are given in the contract data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of contract identified in the contract data. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the schedule of deviations (if any). Unless the tenderer (now contractor**)** within five working days of the date of such receipt notifies the employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.[1]

Signature

……
Name Ms S Gede

Capacity:
Acting Head of the Eastern Cape Department of Health

for the Employer

Eastern Cape Department of Health
Dukumbana Building, Independence Avenue
BHISHO

(Name and address of organization)

Name and signature
of witness …… Date ……

Schedule of Deviations

1 Subject _____
Details
_____

2 Subject _____
Details
_____

3 Subject _____
Details
_____

4 Subject _____
Details
_____

By the duly authorized representatives signing this agreement, the employer and the tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the tender schedules, as well as any confirmation,

clarification or changes to the terms of the offer agreed by the tenderer and the employer during this process of offer and acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender/ quotation documents and the receipt by the tenderer of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this agreement.

[1] *As an alternative, the following wording may be used:*

Notwithstanding anything contained herein, this agreement comes into effect two working days after the submission by the employer of one fully completed original copy of this document including the schedule of deviations (if any), to a courier-to-counter delivery / counter-to-counter delivery / door-to counter delivery /door-to-door delivery /courier service (delete that which is not applicable), provided that the employer notifies the tenderer of the tracking number within 24 hours of such submission. Unless the tenderer (now contractor) within seven working days of the date of such submission notifies the employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties

3.1.2. PART C1.2: CONTRACT DATA

The Joint Building Contracts Committee® - NPC
CONTRACT DATA
For use by ORGANS OF STATE and other PUBLIC SECTOR BODIES
Principal Building Agreement
Edition 6.2 - May 2018

A PROJECT INFORMATION

A1.0 Works [1.1]

Project name	**Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District)**
Reference number	**SCMU3-23/24-0738-HO**
Works description	Refer to document C3 – Scope of Work

A2.0 Site [1.1]

Erf / stand number	Refer to document C4 – Site Information
Township / Suburb	81 Tynira Street, Motherwell 4, Gqeberha, 6214
Site address	Refer to document C4 – Site Information
Local authority	Nelson Mandela Bay Municipality - Gqeberha

A3.0 Employer [1.1]

Official Name of Organ of State / Public Sector Body	**Eastern Cape Department of Health**
Business registration number	N/A
VAT/ number	N/A
Country	South Africa
Employer's representative: Name	Ms. S. Gede Acting Head of Department Eastern Cape Department of Health
Telephone number	040 608 9501
Physical address	**EASTERN CAPE DEPARTMENT OF HEALTH:** **SUPPLY CHAIN MANAGEMENT OFFICE,** **GLOBAL LIFE CENTRE, SCM UNIT,** **C/O PHALO AVENUE AND R63** **BHISHO.**

A4.0 Principal Agent [1.1]

Name	Brinkman Ndayi Mcall (Pty) Ltd			
Legal entity of above	Brinkman Ndayi Mcall (Pty) Ltd	Contact person	Arinda Swart	
Practice number		Telephone number	041-5852125	
		Mobile number		
Country	South Africa	E-mail	arindas@bnm.co.za	
Postal address	PO Box 12376, Centra Hill, Gqeberha		Postal Code	12376
Physical address	Suite 1 Lyndon, 114 Park Drive, Gqeberha		Postal Code	12376

A5.0 Agent [1.1]

Discipline	Architect			
Name	Brinkman Ndayi Mcall (Pty) Ltd			
Legal entity of above	Brinkman Ndayi Mcall (Pty) Ltd	Contact person	Arinda Swart	
Practice number		Telephone number	041-5852125	
		Mobile number		
Country	South Africa	E-mail	arindas@bnm.co.za	
Postal address	PO Box 12376, Centra Hill, Gqeberha 60006		Postal Code	12376
Physical address	Suite 1 Lyndon, 114 Park Drive, Gqeberha		Postal Code	12376

A6.0 Agent [1.1]

Discipline	Quantity Surveyor			
Name	MMDP Quantity Surveyors and Project Managers			
Legal entity of above	MMDP Quantity Surveyors and Project Managers	Contact person	Frikkie Bezuidenhout	
Practice number		Telephone number	043-7210667	
		Mobile number		
Country	South Africa	E-mail	frikkie@mmdp.co.za	
Postal address	PO Box 8370, Nahoon, East London		Postal Code	5210
Physical address	40 Drake Road, Nahoon, East London		Postal Code	5241

A7.0 Agent [1.1]

Discipline	Civil Engineer		
Name	SMEC SA (Pty) Ltd		
Legal entity of above	SMEC SA (Pty) Ltd	Contact person	Juan Kampman
Practice number		Telephone number	041 3636777

		Mobile number	
Country	South Africa	E-mail	Juan.Kampman@smec.com
Postal address	7 Mangold Street, Gqeberha	Postal Code	6045
Physical address	7 Mangold Street, Ggeberha	Postal Code	6045

A8.0 Agent [1.1]

Discipline	Structural Engineer		
Name	SMEC SA (Pty) Ltd		
Legal entity of above	SMEC SA (Pty) Ltd	Contact person	Juan Kampman
Practice number		Telephone number	041-3636777
		Mobile number	
Country	South Africa	E-mail	Juan.Kampman@smec.com
Postal address	7 Mangold Street, Gqeberha	Postal Code	6045
Physical address	7 Mangold Steet, Gqeberha	Postal Code	6045

A9.0 Agent [1.1]

Discipline	Electrical Engineer		
Name	RNA Consulting Engineers (Pty) Ltd		
Legal entity of above	RNA Consulting Engineers (Pty) Ltd	Contact person	Eric Ceba
Practice number		Telephone number	041-5812807
		Mobile number	
Country	South Africa	E-mail	ericc@rnaconsulteng.co.za
Postal address	87 Heugh Road, Walmer, Gqeberha	Postal Code	6070
Physical address	87 Heugh Road, Walmer, Gqeberha	Postal Code	6070

A10.0 Agent [1.1]

Discipline	Mechanical Engineer		
Name	RNA Consulting Engineers (Pty) Ltd		
Legal entity of above	RNA Consulting Engineers (Pty) Ltd	Contact person	Travis Warne
Practice number		Telephone number	041-5812807
		Mobile number	
Country	South Africa	E-mail	travisw@rnaconsulteng.co.za
Postal address	87 Heugh Road, Walmer, Gqeberha	Postal Code	6070
Physical address	87 Heugh Road, Walmer, Gqeberha	Postal Code	6070

A11.0 Agent [1.1]

Discipline	Occupational Health and Safety Agent			
Name	Lumcus Training & Consulting (Pty) Ltd			
Legal entity of above	Lumcus Training & Consulting (Pty) Ltd	Contact person	Elizabeth White	
Practice number		Telephone number	043-54801112	
		Mobile number		
Country	South Africa	E-mail	liza@lumcus.co.za	
Postal address	242 Cannery Avenue, Kaysers Beach		Postal Code	5264
Physical address	242 Cannery Avenue, Kaysers Beach		Postal Code	5264

A12.0 Agent [1.1]

Discipline	External Stakeholder Manager			
Name	SMEC SA (Pty) Ltd			
Legal entity of above	SMEC SA (Pty) Ltd	Contact person	Juan Kampman	
Practice number		Telephone number	041-3636777	
		Mobile number		
Country	South Africa	E-mail	Juan.Kampman@smec.com	
Postal address	7 Mangold Street, Gqeberha		Postal Code	6045
Physical address	7 Mangold Steet, Gqeberha		Postal Code	6045

B CONTRACT INFORMATION

B 1.0 Definitions [1.1]

Bills of quantities: System/Method of measurement	**Standard System of Measuring Building Work (Seventh Edition) as amended**

B 2.0 Law, regulations, and notices [2.0]

Law applicable to the **works**, state country [2.1]	**Republic of South Africa**

B 3.0 Offer and acceptance [3.0]

Currency applicable to this **agreement** [3.2]	**South African Rand**

B 4.0 Documents [5.0]

The original signed **agreement** is to be held by the **principal agent** [5.2], if not, indicate by whom	**Employer**
Number of copies of **construction information** issued to the **contractor** at no cost [5.6]	**Three (3)**

Documents comprising the **agreement**	Page numbers
The **JBCC®** Principal Building Agreement, Edition 6.2 May 2018	1 to 30
The JBCC® Principal Building Agreement - Contract Data for Organs of State and other Public Sector Bodies, Edition 6.2 May 2018	1 to 18
The JBCC® General Preliminaries for use with the JBCC® Principal Building Agreement, Edition 6.2 May 2018	1 to 30

Contract drawings – description	Number	Revision	Date
As per Drawings listed C3			

B 5.0 Employer's Agents [6.0]

Authority is delegated to the following **agents** to issue **contract instructions** and perform duties for specific aspects of the **works** [6.2]
Principal Agent

Principal agent's and **agents'** interest or involvement in the **works** other than a professional interest [6.3]
None

B 6.0 Insurances [10.0]

Insurances by **employer**			Amount including tax	Deductible amount including tax
Yes / No:	**No**			
Contract works insurance:				
	New **works** [10.1.1] (**Contract sum** or amount)			
or	**Works** with **practical completion** in **sections** [10.2] (**contract sum** or amount)			
or	**Works** with alterations and additions [10.3] (reinstatement value of existing structures with or including new **works**)			
	Direct contractors [10.1.1; 10.2] where applicable, to be included in the contract works insurance			
	Free issue [10.1.1; 10.2] where applicable, to be included in the contract works insurance			
	Escalation, professional fees and reinstatement costs if not included above			
Total of the above contract works insurance amount				
Supplementary insurance [10.1.2; 10.2]				
Public liability insurance [10.1.3; 10.2]				
Removal of lateral support insurance [10.1.4; 10.2]				
Other insurances [10.1.5]				
Yes/ No?	No	If yes, description 1		
Yes/ No?	No	If yes, description 2		

and/or

Insurances by **Contractor**		Amount including tax	Deductible amount including tax
Yes / No:	**Yes**		
	New **works** [10.1.1] (**Contract sum** or amount)	N/A	N/A
or	**Works** with **practical completion** in **sections** [10.2] (**contract sum** or amount)	N/A	N/A
or	**Works** with alterations and additions [10.3] (reinstatement value of existing structures with or including new **works**)	**To the minimum value of the contract sum + 10%**	**With a deductible not exceeding 5% of each and every claim**
	Direct contractors [10.1.1; 10.2] where applicable, to be included in the contract works insurance	N/A	
	Free issue [10.1.1; 10.2] where applicable, to be included in the contract works insurance	N/A	
	Escalation, professional fees and reinstatement costs if not included above	N/A	

Total of the above contract works insurance amount			To the minimum value of the contract sum + 10%	**With a deductible not exceeding 5% of each and every claim**
Supplementary insurance [10.1.2; 10.2]			No	
Public liability insurance [10.1.3; 10.2]			R5 million	
Removal of lateral support insurance [10.1.4; 10.2]			No	
Other insurances [10.1.5]				
Yes/ No?	**No**	If yes, description 1		
Hi Risk Insurance [10.1.5.1]				
Yes/ No?	**No**	If yes, description 2		

B 7.0 Obligations of the employer [12.1]

Existing premises will be in use and occupied [12.1.2]		**Yes / No?**	**Yes**
If yes, description	Motherwell CHC is a functional CHC and construction will take place within these premises. The Contractor will, throughout the entire period of the works, be responsible for the proper and adequate protection of property and the public and ECDOHs personnel from damage or injury resultant from the works and for the proper security of the site at all times during the course of the works. Further, the Contractor must allow for all temporary hoardings, required by the Local Authorities, National Building Regulations. OHS Act and or demanded by his own requirements. Allowance must further be made for periodic adjustment of any hoardings and for their eventual removal and for making good. All temporary fencing hoardings, etc. required must be priced for in these Bills of Quantities.		
Restriction of working hours [12.1.2]		**Yes / No?**	**Yes**
If yes, description	The completion of the project is urgent and work shall be executed during normal working hours i.e. 7h30 until 17h00 daily including weekends. Work required to be executed outside of these hours must be arranged with the Facilities Manager and the Chief Executive of the CHC, in advance		
Natural features and known services to be preserved by the contractor [12.1.3]		**Yes / No?**	**No**
If yes, description			
Restrictions to the site or areas that the contractor may not occupy [12.1.4]		**Yes / No?**	**Yes**
If yes, description	Work areas and restricted areas shall be defined at Site Handover		
Supply of free issue [12.1.10]		Yes / No?	**No**
If yes, description			

B 8.0 Nominated subcontractors [14.0]

Yes / No?	**No**	**If yes, description of specialisation**
Specialisation 1		
Specialisation 2		

Specialisation 3	
Specialisation 4	
Specialisation 5	
Specialisation 6	
Specialisation 7	
Specialisation 8	
Specialisation 9	

B 9.0 Selected subcontractors [15.0]

Yes / No?	**No**	**If yes, description of specialisation**
Specialisation 1		
Specialisation 2		
Specialisation 3		
Specialization 4		
Specialization 5		
Specialisation 6		
Specialisation 7		
Specialisation 8		
Specialisation 9		
Specialisation 10		

B 10.0 Direct contractors [16.0]

Yes / No?	**No**	**If yes, description of extent of work**
Extent of work [12.1.11]		
Extent of work [12.1.11]		
Extent of work [12.1.11]		
Extent of work [12.1.11]		
Extent of work [12.1.11]		

B 11.0 Description of sections [20.1] – REFER TO SCOPE OF WORK FOR DETAILS

Section 1	**1.1** Roof replacement and external works repairs.
Section 2	N/A
Section 3	N/A
Section 4	N/A
Section 5	N/A

Section 6	N/A
Section 7	N/A

B 12.0 Possession of site [12.1.5], practical completion [19.0; 20.0] and penalty [24.0]

Practical completion for the works as a whole	Intended date of possession of the site Refer B17.0 [12.1.5; 12.2.22]	Period for inspection by the principal agent [19.3]	The date for practical completion shall be the period as indicated below from the date of possession of the site by the contractor [12.2.7; 24.1]	Penalty for late completion [24.1]
		working days	Period in months	Penalty amount per calendar day (excl. tax)
		10 Working days	**14 Calendar months (Shutdown period excluded)**	**2,50c/R100 of Contract amount**

or where **sections** are applicable N/A

Practical completion of a section of the works	Intended date of possession of the site Refer B17.0 [12.1.5; 12.2.22]	Period for inspection by the principal agent [19.3]	The date for practical completion shall be the period as indicated below from the date of possession of the site by the contractor [12.2.7; 24.1]	Penalty for late completion [24.1]
		Working days	Period in months	Penalty amount per calendar day (excl. tax)
Section 1				
Section 2				
Section 3				
Section 4				
Section 5				
Section 6				
Section 7				
Section 8				
Remainder of the				

Criteria to achieve **practical completion** not covered in the definition of **practical completion**
No further Criteria

B 13.0 Defects liability period [21.0]

Extended defects liability period: Refer B17.0 [21.13]	**Yes / No?**	**Yes**
If yes, description of applicable elements	**All works**	

B 14.0 Payments [25.0]

Date of month for issue of regular **payment certificates** [25.2]	**30th**		
Contract price adjustment / Cost fluctuations [25.3.4; 26.9.5]	**Yes / No?**	**Yes**	**Base date = Tender closing date**
If yes, method to calculate	**CPAP calculated with Haylett formulae based on indices as provided by Stats SA**		
Employer shall pay the **contractor** within: [25.10]	**Thirty (30) calendar days**		

B 15.0 Dispute resolution [30.0]

Adjudication [30.6.1; 30.10] Name of nominating body	**Refer to Part C1.3 Dispute Resolution Mechanism**	
Applicable rules for adjudication [30.6.2]	**Adjudication in accordance with the CIDB adjudication process**	
Arbitration [30.7.4; 30.10]	**Yes / No?**	**No**
If Yes, name of nominating body *If No, then dispute will be referred to litigation		
Applicable rules for arbitration [30.7.5]	N/A	

B 16.0 JBCC® General Preliminaries – selections

Provisional bills of quantities [B2.2]		**Yes / No?**	**No**
Availability of construction information – is the construction information complete? [B2.3]		**Yes / No?**	**Yes**
Previous work - dimensional accuracy - details of previous contract(s) [B3.1]		N/A	
Previous work - **defects** - details of previous contract(s) [B3.2]		N/A	
Inspection of adjoining properties - details [B3.3]		N/A	
Handover of **site** in stages - specific requirements [B4.1]		Refer to B11 (Contract Data)	
Enclosure of the **works** - specific requirements [B4.2]		Hoarding to working areas.	
Geotechnical and other investigations - specific requirements [B4.3]		N/A	
Existing premises occupied - details [B4.5]		Working Areas will be occupied	
Services - known - specific requirements [B4.6]		No	
Water [B8.1]	By **contractor**	**Yes / No?**	**Yes**
	By **employer**	**Yes / No?**	**No**
	By **employer** – metered	**Yes / No?**	**No**
Electricity [B8.2]	By **contractor**	**Yes / No?**	**Yes**
	By **employer**	**Yes / No?**	**No**
	By **employer** – metered	**Yes / No?**	**No**
Ablution and welfare facilities [B8.3]	By **contractor**	**Yes / No?**	**Yes**
	By **employer**	**Yes / No?**	**No**
Communication facilities - specific requirements [B8.4]		No specific requirements	
Protection of the works - specific requirements [B11.1]		No specific requirements	
Protection / isolation of existing works and works occupied in sections - specific requirements [B11.2]		No specific requirements	
Disturbance - specific requirements [B11.5]		No specific requirements	
Environmental disturbance - specific requirements [B11.6]		No specific requirements	

B 17.0 Changes made to JBCC® documentation

Reference may be made to other documents forming part of this **agreement**

1.1 Definitions

AGREEMENT: The completed Form of Offer and Acceptance, the completed **JBCC®** Principal Building Agreement and **JBCC® contract data for organs of state and other public sector bodies, the contract drawings, the priced document** and any other documents reduced to writing and signed by the authorised representatives of the **parties**

CONSTRUCTION PERIOD: The period commencing on the date of possession of the **site** by the **contractor** and ending on the date of **practical completion**

CONTRACT PERIOD: The period commencing on the date of the letter of acceptance and ending on the date of final completion

COST FLUCTUATION shall mean contract price adjustment provision (CPAP) for the adjustment of fluctuation in the cost of labour, plant, material and goods as stated in the schedule

DEFAULT INTEREST: No Clause

GUARANTEE FOR CONSTRUCTION: A security in terms of the ECDOH's Guarantee for Construction form/s, obtained by the contractor from an institution approved by the employer [CD]

CONTRACT DATA FOR ORGANS OF STATE AND OTHER PUBLIC SECTOR BODIES: The document listing the Organs of State and other Public Sector Bodies' requirements and the project specific information

INTEREST: The interest rates applicable on this contract, whether specifically indicated in the relevant clauses or not, will be the rate as determined by the Minister of Finance from time to time, in terms of section 80(1)(b) of the Public Finance Management Act, 1999 (Act No 1 of 1999), calculated as simple interest, in respect of debts owing to the State, and will be the rate as determined by the Minister of Justice and Constitutional Development from time to time 80(1)(b) of the Public Finance Management Act, 1999 (Act No 1 of 1999), calculated as simple interest, in respect of debts owing by the State

LETTER OF ACCEPTANCE: The letter of formal acceptance of the Contractor's or Service Provider's Tender / Bid, issued and signed by the Employer

PAYMENT CERTIFICATE: A certificate issued at regular agreed intervals [CD] by the principal agent to the parties certifying the amount due and payable in terms of Clause 25.3

PRINCIPAL AGENT: The person or entity appointed by the **employer** and named in the **contract data for organs of state and other public sector bodies**. In the event of a principal agent not being appointed, then all the duties and obligations of a **principal agent** as detailed in the **agreement** shall be fulfilled by the employer's representative as named in the **contract data for organs of state and other public sector bodies**

3.0 Offer and Acceptance

Amend 3.3 to read as follows:
This **agreement** shall come into force on the date as stated on the Form of Offer and Acceptance and continue to be of force and effect until the end of the **latent defects** liability period [22.0] notwithstanding termination [29.0] or the certification of **final completion** [21.0] and final payment [25.0]

4.0 Cession and Assignment

Replace Clause 4.3 with the following:

Where a contractor cedes any right or any monies due to or to become due under this agreement as security in favour of a financial institution, the prior written consent of the employer, which consent shall not be unreasonably withheld, must be obtained

5.0 Documents

Replace Clause 5.4 with the following:

The Bills of Quantities shall not be used as a specification of material and goods or methods unless so instructed by the Principal Agent. The contractor may not use the Bills of Quantities for purpose of ordering material. All dimensions and quantities must be determined on site before ordering. In the event of discrepancy between the drawings and Bills of Quantity, the drawings shall take preference

Replace Clause 5.5 with the following:

The parties may publish or disclose on any platform only the contract scope and contract amount

6.0 Employer's Agents

Replace Clause 6.5 with the following:

Where the principal agent and/or an agent fails to act or is unable to act or ceases to be the principal agent or an agent in terms of this agreement, the employer shall appoint another principal agent and/or an agent

Add the following as 6.7:

In terms of the clauses listed hereunder, the **employer** has retained its authority and has not given a mandate to the **principal agent**. The **employer** shall sign all documents in relation to clauses 4.2, 14.1.2,14.1.4, 14.4.1, 14.6, 23.1, 23.2, 23.3, 23.7, 23.8, 26.1, 26.7, 26.12 and 28.4

8.0 Works Risk

Replace Clause 8.4 with the following**:**

The **contractor** shall bear the full risk of damage to and/or destruction of the **works** by whatever cause during construction of the **works** and hereby indemnifies and holds harmless the **employer** against any such damage. The **contractor** shall take such precautions and security measures and other steps for the protection and security of the **works** as the **contractor** may deem necessary

9.0 Indemnities

9.2.7: Add the following to the end of the first sentence: "…. due to no fault of the **contractor**"
9.2.9 No Clause
9.2.10 No Clause

Add the following as clause 9.3**:**

The employer's rights to claim damages for the contractor's omissions and actions will not be affected.

10.0 Insurances

Add the following as 10.1.5.1:

Hi risk Insurance

In the event of the project being executed in a geological area classified as a "High Risk Area", that is an area which is subject to highly unstable sub-surface conditions that might result in catastrophic ground movement evident by sinkhole or doline formation the following will apply:

10.1.5.1.1 Damage to **the works**

The contractor shall, from the date of possession of the **site** until the date of the **certificate of practical completion**, bear the full risk of and hereby indemnifies and holds harmless the **employer** against any

damage to and/or destruction of the **works** consequent upon a catastrophic ground movement as mentioned above. The **contractor** shall take such precautions and security measures and other steps for the protection of the **works** as he may deem necessary

When so instructed to do so by the **principal agent**, the **contractor** shall proceed immediately to remove and/or dispose of any debris arising from damage to or destruction of the **works** and to rebuild, restore, replace and/or repair the **works**, at the **contractor's** own costs

10.1.5.1.2 Injury **to persons or loss of or damage to property**

The **contractor** shall be liable for and hereby indemnifies and holds harmless the **employer** against any liability, loss, claim or proceeding arising at any time during the period of the contract whether arising in common law or by statute, consequent upon personal injuries to or the death of any person whomsoever resulting from, arising out of or caused by a catastrophic ground movement as mentioned above

The **contractor** shall be liable for and hereby indemnifies the **employer** against any and all liability, loss, claim or proceeding consequent upon loss of or damage to any moveable, or immovable property, or personal property, or property contiguous to the **site**, whether belonging to or under the control of the **employer** or any other body or person whomsoever arising out of or caused by a catastrophic ground movement, as mentioned above, which occurred during the period of the contract

10.1.5.1.3

It is the responsibility of the **contractor** to ensure that he has adequate insurance to cover his risk and liability as mentioned in 10.1.5.1.1 and 10.1.5.1.2. Without limiting the **contractor's** obligations in terms of the contract, the **contractor** shall, within twenty-one (21) **calendar days** of the date of possession of the site, but before commencement of the **works**, submit to the **employer** proof of such insurance policy, if requested to do so

10.1.5.1.4
The **employer** shall be entitled to recover any and all losses and/or damages of whatever nature suffered or incurred consequent upon the **contractor's** default of his obligations as set out in 10.1.5.1.1; 10.1.5.1.2 and 10.1.5.1.3. Such losses or damages may be recovered from the **contractor** or by deducting the same from any amounts still due under this contract or under any other contract presently or hereafter existing between the **employer** and the **contractor** and for this purpose all these contracts shall be considered one indivisible whole

11.0 Securities

Amend 11.10 to read as follows:

There shall be no lien or right of retention held by any **contractor** in respect of the works executed on **site**

12.0 Obligations of the Parties

12.1.1 No Clause

Replace Clause 12.1.5 with the following:

Give possession of the site to the contractor within ten (10) working days after approval of the Health and Safety Plan or the issue of a construction permit by the Department of Labour, if applicable, after the contractor complied with the terms of 12.2.22

12.1.6 No Clause

12.1.8 No Clause

Replace Clause 12.2.2 with the following:

The priced Bills must be submitted as part of the returnable documents. Where the priced document contains errors or discrepancies and/or prices considered by the employer or principal agent to be imbalanced or unreasonable the employer or principal agent and the contractor shall adjust such prices without any change to the contract sum

Replace Clause 12.2.5 with the following:
Effect and keep in force insurances in favour of the employer as beneficiary where the contractor is responsible for providing insurances [10.0) [CD]

Replace Clause 12.2.13 with the following:
Designate a competent person full time on site to continuously administer and control the works on site and to receive and implement notices and contract instructions on behalf of the contractor

Add the following as Clause 12.2.22:
Within fourteen (14) working days of the date of the letter of acceptance submit to the principal agent an acceptable health and safety plan, required in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993)

Add the following as Clause 12.2.23:
The contractor shall within reasonable time inform the agents regarding inspection of the works before covering / closing [B 12.0]

19.0 Practical Completion

Replace Clause 19.5 with the following:

On issue of the only or last certificate of practical completion the employer shall be entitled to possession of the works and the site. On issue of the certificate of practical completion for a section, the employer shall be entitled to possession of such section.

21.0 Defects Liability Period and Final Completion

Clause 21.0

Replace Clause 21.1 with the following:
The defects liability period for the works shall commence on the calendar day following the date of works completion and end at midnight (00:00) ninety (90) calendar days from the date of works completion [CD] or when work on the list for completion has been satisfactorily attended to [21.6), whichever is the later (if we use practical completion)

Replace Clause 21.6 with the following:
On the expiry of the ninety (90) calendar days defects liability period [21.1] for items not indicated as items with an extended liability as indicated in B14 and on receipt of the contractor's notice to the principal agent

And/or

On the expiry of the defects liability period as indicated in B14, for items indicated in B14 and on receipt of the contractor's notice to the principal agent, the principal agent shall:

(1) inspect the works and within ten (10) working days either issue a list for final completion detailing all outstanding work or defects that must be attended to, or rectified to achieve final completion or
(2) issue the certificate of final completion to the contractor with a copy to the employer for that part of the works where defects liability period has expired

21.6.1 Omit Clause

21.6.2 Omit Clause

Add the following as Clause 21.13:

The ninety (90) calendar days defects liability period for the works [21.1] is replaced with an extended defects liability period of three hundred and sixty-five (365) calendar days in respect of the listed applicable elements in B14

Add the following as Clause 21.14:
Penalties will be applied if the items on the completion list have not been attended to within a period of ninety (90) calendar days [21.1]. If additional defect items have being added to the list during this period, then the Principal Agent and Contractor will agree on a revised completion date. Failing in achieving the revised date will result in penalties being applied. [B12.0

23.0 Latent Defects Liability Period

22.3.2 No Clause

24.0 Penalty for Late and Non-completion

Replace Clause 24.1 with the following:
Where the contractor fails to bring the works, or a section thereof, to practical or final- completion by the applicable completion date [CD], or the revised applicable completion date, the contractor shall be liable to the employer for the penalty [CD]

Replace Clause 24.2 with the following:
Where the employer elects to levy such penalty the employer, or the principal agent on instruction from the employer, shall give notice thereof to the contractor. The principal agent shall determine the penalty due from the later of the date for practical- works-, or final- completion [CD], or the revised date for practical- works-, or final- completion, up to and including the earlier of:

Replace Clause 24.2.1 with the following:
The actual or deemed date of practical or final- completion, of the works, or a section thereof [23.7.1]

25.0 Payment

Replace Clause 25.2 with the following:

The principal agent shall issue at regular agreed intervals [CD] payment certificates, to the contractor with a copy to the employer, up to and including practical completion. Interim Payment certificates may be issued to the contractor between practical completion and the final payment certificate. A payment certificate may be for a nil or negative amount

Add the following to Clause 25.3:
25.3.12 Tax Invoice

25.5 No Clause

Replace Clause 25.6 with the following:

Materials and goods will only be certified and paid for upon providing proof of full payment to the supplier and proof of transfer of ownership from the supplier to the contractor by the contractor. Once paid, material and goods shall become the property of the employer and shall not be removed from site without the written authority of the Employer.

25.7.5 No clause.

Replace Clause 25.10 with the following:

The employer shall pay the contractor the amount stipulated in an issued payment certificate, correct in all material respects, within thirty (30) calendar days from the date of receiving the payment certificate, invoice and all other substantiating documentation for items certified in the payment certificate

25.10: Delete the words “and/or **compensatory interest**”

Replace Clauses 25.12 to 25.12.3 with the following:

Clause 25.12

The value of the works in terms of 25.1 and of the materials and goods in terms of 25.4 shall be certified in full. The value certified shall be subject to the following percentage adjustments:

25.12.1 Ninety-five per cent (95%) of such value in interim payment certificates issued up to the date of practical completion

25.12.2 Ninety-seven per cent (97%) of such value in interim payment certificates issued on the date of practical completion and up to but excluding the date of final completion

25.12.3 Ninety-nine per cent (99%) of such value in interim payment certificates issued on the date of final completion and up to but excluding the final payment certificate in terms of 26

25.12.4 One hundred per cent (100%) of such value in the final payment certificate in terms of 26 except where the amount certified is in favour of the employer. In such an event the payment reduction shall remain at the adjustment level applicable to the final payment certificate.

25.14.2: Not applicable

26.0 Adjustment of the Contract Value and Final Account

Ref Clause 6.7 [CD] – Clause 26.1

Omit Clause 26.4.3

Ref Clause 6.7 [CD] – Clause 26.7

Replace Clause 26.10 with the following**:**

The principal agent shall prepare the final account in consultation with the employer and issue the final account, to the contractor within sixty (60) working days of the date of practical completion

27.0 Recovery of Expense and/or Loss

Clause 27.0

Replace Clause 27.1.2 with the following:
Interest due to late payment only

Replace Clause 27.1.4 with the following:
Interest due to late payment only

27.1.5 No Clause

Replace Clause 27.5 with the following:
Where the employer decides to recover an amount due in terms of 27.2 from a construction guarantee, cash deposit or retention money held as security, the employer shall issue a written demand to the contractor before recovering the amount. Should such amount not be paid to the employer within fourteen (14) calendar days of the date-of notice by the employer, the employer may recover such an amount from the security

29.0 Termination

Clause 29.0

Add the following as Clause 29.1.4:
The contractor's estate has been sequestrated, liquidated or surrendered in terms of the insolvency laws in force within the Republic of South Africa

Add the following as Clause 29.1.5:

The contractor has engaged in corrupt or fraudulent practices in competing for or in executing the contract.

Add the following as Clause 29.1.6:
Honour his obligations in terms of Clauses 10.1.5.1.3, 11.4.1 and 12.2. sub-Clauses 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 19, 20, 22.

Replace Clause 29.7 with the following:
The employer, on notice to the contractor, may recover damages from the contractor from the date of termination including, but not limited to, additional costs incurred in the completion, consultant cost, rental of alternative accommodation, invitation of completion tenders, salaries of officials and safeguarding the site, of the remaining work [25.3.7; 27.1.3]

Replace Clause 29.9 with the following:
The employer has the right of recovery against the contractor, where applicable, [CD] from:

The payment reduction until the final payment is made;

29.14.1 No Clause

29.14.3 No Clause

29.14.4 No Clause

29.14.5 No Clause

29.14.6 No Clause

29.14.7 No Clause

29.15 No Clause

29.16 No Clause

29.17.3 No Clause

29.17.6 No Clause

29.21.5 No Clause

29.22 No Clause

29.23 No Clause

29.25.3 No Clause

29.25.4 No Clause

29.27 No Clause

30.0 Dispute Resolution

Replace Clause 30.2 with the following:
Where such disagreement is not resolved within ten (10) working days of receipt of such notice it shall be deemed to be a dispute and shall be submitted to Mediation as a first method of dispute resolution failing which the parties will resort to Litigation

30.3 to 30.7.7 No Clauses

Replace Clause 30.8 with the following:
The parties may, by agreement and at any time before Litigation, refer a dispute to mediation, in which event:

30.8.1 No Clause

Replace Clause 30.8.2 with the following:
The appointment of a mediator, the procedure, and the status of the outcome shall be agreed between the parties

Replace Clause 30.8.3 with the following:
Regardless of the outcome of a mediation the parties shall bear their own costs concerning the Mediation and equally share the costs of the mediator and related expenses.

Replace Clause 30.9 with the following:
Institution of Litigation shall be commenced, and process served within three (3) year from the date of existence of the dispute, failing which the dispute shall lapse

30.10 No Clause

30.12 No Clause

C TENDERER'S SELECTIONS

C 1.0 Security [11.0]

Guarantee for construction: Option A only	**Option:**	**A**

Option A	**Fixed construction guarantee of 10% of the contract**

Guarantee for payment by **employer** [11.5.1; 11.10]	Not Applicable

Advance payment, subject to a **guarantee for advance payment** [11.2.2; 11.3]	Not Applicable

C 2.0 Contractor's annual holiday periods during the construction period

Year 1 **contractor's** annual holiday period	start date		end date	
Year 2 **contractor's** annual holiday period	start date		end date	
Year 3 **contractor's** annual holiday period	start date		end date	

C 3.0 Payment of preliminaries [25.0]

Contractor's selection: Select Option A or B	**Option:**	

Where the contractor does not select an option, Option A shall apply

Payment methods

Option A	The **preliminaries** shall be paid in accordance with an amount prorated to the value of the **works** executed in the same ratio as the amount of the **preliminaries** to the **contract sum**, which **contract sum** shall exclude the amount of **preliminaries**. Contingency sum(s) and any provision for cost fluctuations shall be excluded for the calculation of the aforesaid ratio
Option B	The **preliminaries** shall be paid in accordance with an amount agreed by the **principal agent** and the **contractor** in terms of the **priced document** to identify an initial establishment charge, a time-related charge and a final dis-establishment charge. Payment of the time-related charge shall be assessed by the **principal agent** and adjusted from time to time as may be necessary to take into account the rate of progress of the **works**

Lump sum contract

Where the amount of **preliminaries** is not provided it shall be taken as 7.5% (seven and a half per cent) of the **contract sum**, excluding contingency sum(s) and any provision for cost fluctuations.

C 4.0 Adjustment of preliminaries [26.9.4]

Contractor's selection: Select Option A or B	**Option:**	

Where the contractor does not select an option, Option A shall apply

Provision of particulars

The **contractor** shall provide the particulars for the purpose of the adjustment of **preliminaries** in terms of his selection. Where completion in sections **is** required, the **contractor** shall provide an apportionment of **preliminaries** per **section**

Option A	An allocation of the **preliminaries** amounts into Fixed, Value-related and Time-related amounts as defined for adjustment method Option A below, within fifteen (15) **working days** of the date of acceptance of the tender
Option B	A detailed breakdown of the preliminaries amounts within fifteen (15) working **days of** possession of the site. Such breakdown shall include, inter alia, the administrative and supervisory staff, the use of **construction equipment**, establishment and dis-establishment charges, insurances and guarantees, all in terms of the **programme**

Adjustment Methods

The amount of **preliminaries** shall be adjusted to take account of the effect which changes in time and/or value have on **preliminaries**. Such adjustment shall be based on the particulars provided by the **contractor** for this purpose in terms of Options A or B, shall preclude any further adjustment of the amount of **preliminaries** and shall apply notwithstanding the actual employment of resources by the **contractor** in the execution of the **works**

Option A	The **preliminaries** shall be adjusted in accordance with the allocation of **preliminaries** amounts provided by the **contractor,** apportioned to **sections** where completion in **sections** is required Fixed - An amount which shall not be varied Value-related - An amount varied in proportion to the **contract value** as compared to the **contract sum**. Both the **contract sum** and the **contract value** shall exclude the amount of **preliminaries**, contingency sum(s) and any provision for cost fluctuations Time-related - An amount varied in proportion to the number of **calendar days** extension to the date of **practical completion** to which the **contractor** is entitled with an adjustment of the **contract value** [23.2; 23.3] as compared to the number of **calendar days** in the initial **construction period** [26.9.4]
Option B	The adjustment of **preliminaries** shall be based on the number of **calendar days** extension to the date of **practical completion** to which the **contractor** is entitled with an adjustment of the **contract value** [23.2; 23.3] as compared to the number of **calendar days** in the initial **construction period** [26.9.4] The adjustment shall take into account the resources as set out in the detailed breakdown of the **preliminaries** for the period of construction during which the delay occurred

Failure to provide particulars within the period stated

Option A	Where the allocation of **preliminaries** amounts for Option A is not provided, the following allocation of **preliminaries** amounts shall apply: Fixed - Ten per cent (10%) Value-related - Fifteen per cent (15%) Time-related - Seventy-five per cent (75%) Where the apportionment of the **preliminaries** per **section** is not provided, the categorized amounts shall be prorated to the cost of each **section** within the **contract sum** as determined by the **principal agent**
Option B	Where the detailed breakdown of **preliminaries** amounts for Option B is not provided, Option A shall apply

Lump sum contract

Where the amount of **preliminaries** is not provided it shall be taken as 7.5% (seven and a half per cent) Of the **contract sum**, excluding contingency sum(s) and any provision for cost fluctuations

3.1.3. JBCC GUARANTEE FOR CONSTRUCTION (PRO-FORMA)

Guarantee for Construction

For use with the JBCC® **Principal Building Agreement** edition /date

GUARANTOR DETAILS AND DEFINITIONS

Guarantor:			
Physical Address:			
Guarantor's signatory 1:		Capacity	
Guarantor's signatory 2:		Capacity	
Employer:			
Contractor:			
Principal Agent:			
Works:			
Site:			
Contract Sum:	Accepted amount inclusive of tax	Currency	
Amount in words:			
Guaranteed Sum:	The maximum aggregate amount	Currency	
Amount in words:			
Guarantee for Construction:	*(Insert Variable or Fixed)*		
Expiry Date:			

AGREEMENT DETAILS

Sections:	Total number / not applicable	Last Section	
Principal Agent issues	JBCC® format Recovery Statement, Interim Payment Certificates, the Final Payment Certificate, the Certificate of Practical Completion and the Certificate of Final Completion		

1.0 GUARANTEE FOR CONSTRUCTION (Variable)

1.1 Where a Guarantee for Construction (Variable) in terms of the Agreement has been selected this clause 1.0 and 3.0 to 13.0 shall apply. The Guarantor's liability shall be limited to the diminishing amounts of the Guaranteed Sum as follows:-

GUARANTOR'S LIABILITY	PERIOD OF LIABILITY
1.1.1 Maximum Guaranteed Sum (not exceeding 10.0% of the contract sum) in the amount of:	From and including the date of issue of this Guarantee for Construction and up to and including the date of issue of the Interim Payment Certificate certifying in excess of 50% of the contract sum

Amount in words:

1.1.2 Reducing to the Guaranteed Sum (not exceeding 6.0% of the contract sum) in the amount of:

From and including the day after the date of the aforesaid Interim Payment Certificate and up to and including the date of issue of the only Certificate of Practical Completion or last Certificate of Practical Completion where there are sections

Amount in words:

1.1.3 Reducing to the Guaranteed Sum (not exceeding 4.0% of the contract sum) in the amount of:

From and including the day after the date of the applicable Certificate of Practical Completion and up to and including the date of issue of the only Certificate of Final Completion or the last Certificate of Final Completion where there are sections

Amount in words:

1.1.4 Reducing to the Guaranteed Sum (not exceeding 2.0% of the contract sum) in the amount of:

From and including the day after the date of the applicable Certificate of Final Completion and up to and including the date of issue of the Final Payment Certificate where payment is due to the Contractor, whereafter this Guarantee for Construction shall expire. Where the Final Payment Certificate reflects payment due to the Employer, this Guarantee for Construction shall expire upon payment of the full amount certified

Amount in words:

1.2 The Guarantor's liability limits set out in 1.1.1 to 1.1.4 shall apply in respect of any claim received by the Guarantor during the guarantee validity period

2.0 GUARANTEE FOR CONSTRUCTION (Fixed)

2.1 Where a Guarantee for Construction (fixed) in terms of the Agreement has been selected this clause 2.0 and 3.0 to 13.0 shall apply. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum as follows:

GUARANTOR'S LIABILITY	**PERIOD OF LIABILITY**
Maximum Guaranteed Sum (not exceeding 5.0% of the contract sum) in the amount of:	From and including the date of issue of this Guarantee for Construction and up to and including the date of the only Certificate of Practical Completion or the last Certificate of Practical Completion where there are sections, whereafter this Guarantee for Construction shall expire

Amount in words:

3.0 The Guarantor acknowledges that:

3.1 Any reference in this Guarantee for Construction to the Agreement is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention to create a suretyship;

3.2 Its obligation under this Guarantee for Construction is restricted to the payment of money; and

3.3 Reference to a Recovery Statement or an Interim or Final Payment Certificate, or a Certificate(s) of Practical or Final Completion shall mean such certificate issued by the Principal Agent.

4.0 Subject to the Guarantor's maximum liability referred to in 1.0 or 2.0, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4. 3:

4.1 A copy of a first written demand notice issued by the Employer to the Contractor stating that payment of a sum certified by the Principal Agent in an Interim or Final Payment Certificate has not been made in terms of the Agreement and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;

4.2 A first written demand notice issued by the Employer to the Guarantor at the Guarantor's Physical Address with a copy to the Contractor stating that a period of seven (7) calendar days has elapsed since the issue of the first written demand notice in terms of 4.1 and that the sum certified has not been paid to date. The Employer herewith calls up this Guarantee for Construction and demands payment of the sum certified from the Guarantor; and

4.3 A copy of the applicable payment certificate which entitles the Employer to receive payment in terms of the Agreement of the sum certified in 4.0

5.0. Subject to the Guarantor's maximum liability referred to in 1.0 or 2.0, the Guarantor undertakes to pay the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand notice from the Employer to the Guarantor at the Guarantor's Physical Address calling up this Guarantee for Construction stating that:

5.1 The Agreement has been terminated due to the Contractor's default and that the Guarantee for Construction is called up in terms of 5.0. The demand shall enclose a copy of the notice of termination; or

5.2 A provisional sequestration or liquidation court order has been granted against the Contractor and that the Guarantee for Construction is called up in terms of 5.0. The demand notice shall enclose a copy of the court order.

6.0 The aggregate amount of payments to be made by the Guarantor in terms of 4.0 and 5.0 shall not exceed the Guarantor's maximum liability in terms of 1.0 or 2.0.

7.0 Where the Guarantor is a registered insurer and has made payment in terms of 5.0, the Employer shall within one hundred and eighty (180) calendar days of receipt of payment submit an expense account to the Guarantor showing how all monies received in terms of the Guarantee for Construction have been expended, or will be expended, and shall refund to the Guarantor any surplus amount. All monies refunded to the Guarantor in terms of this Guarantee for Construction shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date of payment by the Guarantor to the Employer until the date of refund.

8.0 Payment by the Guarantor in terms of 4.0 or 5.0 shall be made within seven (7) calendar days upon receipt of the first written demand notice to the Guarantor.

9.0 The Employer shall have the absolute right to arrange its affairs with the Contractor in any manner which the Employer deems fit and the Guarantor shall not have the right to claim its release from this Guarantee for Construction on account of any conduct alleged to be prejudicial to the Guarantor.

10.0 The Guarantor chooses the Physical Address stated above for all notices and correspondences in relation to this Guarantee.

11.0 This Guarantee for Construction is neither negotiable nor transferable and shall expire in terms of either 1.1.4 or 2.1, or payment in full of the Guaranteed Sum or on the Expiry Date, whichever is the earlier, whereafter no claims will be considered by the Guarantor. This original Guarantee for Construction shall be returned to the Guarantor after it has expired.

12.0 This Guarantee for Construction, with the required demand notices in terms of 4.0 or 5.0, shall be regarded as a liquid document for the purpose of obtaining a court order.

13.0 Where this Guarantee for Construction is issued in the Republic of South Africa this Guarantee for Construction shall be governed by the laws of the Republic of South Africa. A competent court in the Republic of South Africa shall have sole jurisdiction in terms of this Guarantee for Construction. Where this Guarantee for Construction is issued outside the Republic of South Africa, the laws of the guarantor who issued this Guarantee for Construction shall prevail. A competent court, in the jurisdiction in which the guarantor is domiciled shall prevail.

Signed at: _____ Date: _____

Guarantor's Signatory 1: _____ Guarantor's Signatory 2: _____

Witness: _____ Witness: _____

Guarantor's seal or stamp

3.1.4. PART C1.3: DISPUTE RESOLUTION MECHANISM

3.1.5. C1.3 CIDB ADJUDICATOR'S AGREEMENT

C1.3 CIDB ADJUDICATOR'S AGREEMENT

This agreement is made on the . . . . day of . . . . between:. . . . . (name of company / organization) of . . . . (address) and. . . . . (name of company / organization) of . . . . (address) (the Parties) and. . . . . (name) of . . . . (address) (the Adjudicator).

Disputes or differences may arise/have arisen* between the Parties under a Contract dated . . . . and known as. . . . . and these disputes or differences shall be/have been* referred to adjudication in accordance with the CIDB Adjudication Procedure, (hereinafter called "the Procedure") and the Adjudicator may be or has been requested to act.

* Delete as necessary

IT IS NOW AGREED as follows:

1 The rights and obligations of the Adjudicator and the Parties shall be as set out in the Procedure.
2 The Adjudicator hereby accepts the appointment and agrees to conduct the adjudication in accordance with the Procedure.
3 The Parties bind themselves jointly and severally to pay the Adjudicator's fees and expenses in accordance with the Procedure as set out in the Contract Data.
4 The Parties and the Adjudicator shall at all times maintain the confidentiality of the adjudication and shall endeavour to ensure that anyone acting on their behalf or through them will do likewise, save with the consent of the other Parties which consent shall not be unreasonably refused.
5 The Adjudicator shall inform the Parties if he intends to destroy the documents which have been sent to him in relation to the adjudication and he shall retain documents for a further period at the request of either Party.

SIGNED by: ______________	SIGNED by: ______________	SIGNED by: ______________
Name:	Name:	Name:
who warrants that he / she is duly authorized to sign for and on behalf of the first Party in the presence of	who warrants that he / she is duly authorized to sign for and behalf of the second Party in the presence of	the Adjudicator in the presence of
Witness ______________	Witness: ______________	Witness: ______________

Name:		Name		Name:	
Address:		Address:		Address:	
Date:		Date:		Date:	

Contract Data

1	The Adjudicator shall be paid at the hourly rate of R. . . . . in respect of all time spent upon, or in connection with, the adjudication including time spent travelling.
2	The Adjudicator shall be reimbursed in respect of all disbursements properly made including, but not restricted to: (a) Printing, reproduction and purchase of documents, drawings, maps, records and photographs. (b) Telegrams, telex, faxes, and telephone calls. € Postage and similar delivery charges. (d) Travelling, hotel expenses and other similar disbursements. € Room charges. (f) Charges for legal or technical advice obtained in accordance with the Procedure.
3	The Adjudicator shall be paid an appointment fee of R . . . . . This fee shall become payable in equal amounts by each Party within ….. days of the appointment of the Adjudicator, subject to an Invoice being provided. This fee will be deducted from the final statement of any sums which shall become payable under item 1 and/or item 2 of the Contract Data. If the final statement is less than the appointment fee the balance shall be refunded to the Parties.
4	The Adjudicator is/is not* currently registered for VAT.
5	Where the Adjudicator is registered for VAT it shall be charged additionally in accordance with the rates current at the date of invoice.
6	All payments, other than the appointment fee (item 3) shall become due in 30 days after receipt of invoice, thereafter interest shall be payable at 5% per annum above the Reserve Bank base rate for every day the amount remains outstanding.

* Delete as necessary

4. PART C2 - PRICING DATA

4.1. PART C2.1: PRICING INSTRUCTIONS

C2.1 Pricing Instructions

1 The Bills of Quantities have been drawn up in accordance with the Standard System of Measuring Building Work as amended) published and issued by the Association of South African Quantity Surveyors (Seventh Edition), 2015. Where applicable the:

a) Civil engineering work has been drawn up in accordance with the provisions of the latest edition of SABS 1200 Standardised Specifications for Civil Engineering Works.
b) Mechanical work has been drawn up in accordance with the provisions of the latest edition of SABS 1200 Standardised Specifications for Mechanical Engineering Works.
c) Electrical work has been drawn up in accordance with the provisions of the latest edition of SABS 1200 Standardised Specifications for Electrical Engineering Works.

2 The agreement is based on the JBCC Edition 6.2 of 2018 with Government Clauses, prepared by the Joint Building Contracts Committee, The additions, deletions and alterations to the JBCC Principal Building Agreement as well as the contract specific variables are as stated in the Contract Data. Only the headings and clause numbers for which allowance must be made in the Bills of Quantities are recited.

3 Preliminary and General requirements are based on the preliminaries for the use of JBCC Edition 6.2– May 2018. Only the headings and clause numbers for which allowance must be made in the Bills of Quantities are recited.

4 It will be assumed that prices included in the Bills of Quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to www.stanza.org.za or www.iso.org for information on standards).

5 The drawings listed in the Scope of Works used for the setting up of these Bills of Quantities are kept by the Principal Agent or Engineer and can be viewed at any time during office hours up until the completion of the works.

6 Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted but only if approved by the Principal Agent.

7 The bills of quantities forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, The Standard Conditions of Tender, Conditions of Contract, Specifications, Drawings, The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the **bills of quantities** / lump sum document and be referred to for the full descriptions of work to be done and materials to be used The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the **bills of quantities** / lump sum document

8 Where any item is not relevant to this specific contract, such item is marked N/A (signifying "not applicable")

9 The Contract Data and the standard form of contract referenced therein must be studied for the full extent and meaning of each and every clause set out in Section 1 (Preliminaries) of the Bills of Quantities

10 The Bills of Quantities is not intended for the ordering of materials. Any ordering of materials, based on the Bills of Quantities, is at the Contractor's risk.

11 The amount of the Preliminaries to be included in each monthly payment certificate shall be assessed as an amount prorated to the value of the work duly executed in the same ratio as the preliminaries bears to the total of prices excluding any contingency sum, the amount for the Preliminaries and any amount in respect of contract price adjustment provided for in the contract.

12 Where the initial contract period is extended, the monthly charge shall be calculated on the basis as set out in 11 but taking into account the revised period for completing the works.

13 The amount or items of the Preliminaries shall be adjusted to take account of the theoretical financial effect which changes in time or value (or both) have on this section. Such adjustments shall be based on adjustments in the following categories as recorded in the Bills of Quantities:

a) an amount which is not to be varied, namely Fixed (F)
b) an amount which is to be varied in proportion to the contract value, namely Value Related (V); and
c) an amount which is to be varied in proportion to the contract period as compared to the initial construction period excluding revisions to the construction period for which no adjustment to the contractor is not entitled to in terms of the contract, namely Time Related (T).

14 Where no provision is made in the Bills of Quantities to indicate which of the three categories in 13 apply or where no selection is made, the adjustments shall be based on the following breakdown:

a) 10 percent is Fixed
b) 15 percent is Value Related
c) 75 percent is Time Related

15 The adjustment of the Preliminaries shall apply notwithstanding the actual employment of resources in the execution of the works. The contract value used for the adjustment of the Preliminaries shall exclude any contingency sum, the amount for the Preliminaries and any amount in respect of contract price adjustment provided for in the contract. Adjustments in respect of any staged or sectional completion shall be prorated to the value of each section.

16 The tender price must include Value Added Tax (VAT). All rates, provisional sums, etc. in the bills of quantities must however be net (exclusive of VAT) with VAT calculated and added to the Total Value thereof in the Final Summary.

17. The Contractor shall adhere to "The national minimum wage determined by the Minister in accordance with the National Minimum Wage Act (NMWA)", and yearly pronounced increases for duration of contract.

18. Voting day / Election day, 29 May 2024 will be a statutory public holiday and contractor must make provision in his bid. No further claims will be entertained in this regard.

Province of the
EASTERN CAPE
HEALTH

4.2. PART C2.2 – BILLS OF QUANTITIES

Item No		Quantity	Amount

SECTION No. 1: PRELIMINARIES

BILL No 1: PRELIMINARIES

BUILDING AGREEMENT AND PRELIMINARIES

The **JBCC** Principal Building Agreement (Edition 6.2 - May 2018) prepared by the Joint Building Contracts Committee shall be the applicable building agreement, amended as hereinafter described

The **JBCC** Principal Building Agreement **contract data** form an integral part of this **agreement**

The **JBCC** General Preliminaries (May 2018) published by the Joint Building Contracts Committee for use with the **JBCC** Principal Building Agreement (Edition 6.2 - May 2018) shall be deemed to be incorporated in these **bills of quantities**, amended as hereinafter described

The **contractor** is deemed to have referred to the above mentioned documents for the full intent and meaning of each clause

The clauses in the above mentioned documents are hereinafter referred to by clause number and heading only

Where any item is not relevant to this **agreement** such item is marked N/A signifying "not applicable"

Where standard clauses or alternatives are not entirely applicable to this **agreement** such amendments, modifications, corrections or supplements as will apply are given under each relevant clause heading and such amendments, modifications, corrections or supplements shall take precedence notwithstanding anything to the contrary contained in the above mentioned documents

PREAMBLES FOR TRADES

The General Preambles for Trades 2017 published by the Association of South African Quantity Surveyors shall be deemed to be incorporated in these **bills of quantities** and no claims arising from brevity of description of items fully described in the said General Preambles will be entertained

Supplementary preambles and/or specifications are incorporated in these **bills of quantities** to satisfy the requirements of this project. Such supplementary preambles and/or specifications shall take precedence over the provisions of the General Preambles

The **contractor's** prices for all items throughout these **bills of quantities** shall take account of and include where applicable for all of the obligations, requirements and specifications given in the General Preambles and in any supplementary preambles and/or specifications

If any discrepancy in any of the documents forming part of the contract is found, then the contract data and or amendments within the special conditions of contract and herein shall prevail in cases of conflict between any of the documents

	Carried to Collection	R	

Section No. 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

STRUCTURE OF THIS PRELIMINARIES BILL

Section A : A recital of the headings of the individual clauses in the aforementioned **JBCC** Principal Building Agreement

Section B : A recital of the headings of the individual clauses in the aforementioned **JBCC** General Preliminaries

Section C : Any special clauses to meet the particular circumstances of the project

PRICING OF PRELIMINARIES

Contractors are required to price all individual items in the preliminary and general section of the bill of quantities and should not lump the items into a single sum or amount. This fully priced schedule must be included as part of the priced bill of quantities returnable with tender submission

In the event that the contractor, due to causes of his own making, fails to achieve the targets set out in his construction programme and his performance is not in accordance with the contract, payment of the time related Preliminaries will be paid in proportion to the value of the monthly progress payment and not in accordance with the projected cash flow for this item. The principal agent shall review the status quo and revert to paying the contractor in accordance with the contract once the contractor has demonstrated improvement of their performance and the principal agent is satisfied that the contractor is performing diligently

Similarly the full amount of the fixed portion of the Preliminaries will be paid only once the successful contractor has fully complied with deliverables under this section

Should the **contractor** select Option A in the **contract data** for the adjustment of **preliminaries**, the amounts entered against the relevant items in these **preliminaries** are to be divided into one or more of the three categories provided namely fixed (F), value related (V) and time related (T)

SECTION A: PRINCIPAL BUILDING AGREEMENT

Interpretation (A1-A7)

1 Clause 1.0 - Definitions and interpretation

Pricing of bills of quantities

The **contractor** is to allow opposite each item for all costs in connection therewith. All prices to include, unless otherwise stated, for all materials, fabrication, conveyance and delivery, unloading, storing, unpacking, hoisting, labour, setting, fitting and fixing in position, cutting and waste (except where to be measured in accordance with the standard system of measurement), patterns, models and templates, plant, temporary works, returning of packaging, duties, taxes (other than Value Added Tax), imposts, establishment charges, overheads, profit and all other obligations arising out of this **agreement**. Value Added Tax (VAT) is to be separately stated on the summary page of these **bills of quantities**

Carried to Collection R

Items left unpriced will be deemed to be covered in prices against other items throughout these bills of quantities and no claim for any extras arising out of the contractor's omission to price any item will be entertained

Prices for all construction equipment, temporary works, services and other items shall include for the supply, maintenance, operating cost and subsequent removal and making good as necessary

Contractors are reminded that some of the works are to be undertaken under restrictive site conditions, over steep terrain, in dense vegetation, protected environments etc.

In addition to the usual rates priced for standard measured items in the bills of quantities, contractors shall provide for all additional plant, labour, equipment, temporary works, temporary access ways and any additional supervision, transport, security, special plant and equipment to navigate restrictive site conditions and all things necessary for the completion of the works within this bills of quantities. The rates or amounts tendered for these items shall also include for the contractors management, attendance, profit, costs for removal and reinstatement of the ground conditions, vegetation, etc. in the state and condition prior to the works being undertaken

In addition to the usual rates priced for compliance with law and regulation in relation to inspections, warranties, guarantees, tests, analysis, commissioning and all things necessary for compliance, the contractor is expected to include in the rates, prices and the tendered total of the prices for all inspections, warranties, guarantees, tests, analysis, commissioning and all things necessary for compliance, payable by the contractor

Such items include but are not limited to: - Electrical Compliance Certificate - Plumbing Compliance Certificate - Structural Steel Compliance Certificate - Lightning Certificate - Soil Protection Certificate - Concrete test results and cube certificates - Compaction Test results and certificates - Waterproofing guarantee certificates - TR1 and TR2 prefabricated roof truss certificates - Roof covering certificate - Soil compaction certificates - Electrical and Mechanical test certificates - Plumbing and drainage pressure test certificates - Fire Compliance Certificate - Entomology Certificate - SANS 10400-A:2010 compliance certificates - Any other requirement as per the latest National Building Regulation

Contractors are reminded and hereby given the opportunity to allow for and price all costs related to the abnormal working conditions referred to herein as no claims for additional costs will be entertained for any omission on the part of contractor

Clause 3.9 amended to read 'The priced document shall not be used as a specification for material and goods and the quantities should not be used for procurement purposes

All procurement of material will be based on actual site measurements and not on drawings, specifications or the bill of quantities

Abbreviated descriptions

The items in these **bills of quantities** utilise abbreviated descriptions. It is the intention that the abbreviated descriptions be fully described when read with the applicable measuring system and the relevant preambles and/or specifications. However, should the full intent and meaning of any description not be clear, the **contractor** shall, before submission of his tender, call for a written directive from the **principal agent**, failing which it shall be assumed that the **contractor** has allowed in his pricing for materials and workmanship in terms of international best practice

Carried to Collection R

Section No. 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

Legal status of contractor

If the **contractor** constitutes a joint venture, consortium or other unincorporated grouping of two or more persons then:

1. These persons are deemed to be jointly and severally liable to the **employer** for the performance of this **agreement**

2. These persons shall notify the **employer** of their leader who has assigned authority to bind the **contractor** and each of these persons

3. The **contractor** shall not alter its composition or legal status without the prior written consent of the **employer**

F:..... V:..... T:..... Item

2 Clause 2.0 - **Law**, regulations and **notices**

F:..... V:..... T:..... Item

3 Clause 3.0 - Offer and acceptance

F:..... V:..... T:..... Item

4 Clause 4.0 - Cession and assignment

F:..... V:..... T:..... Item

5 Clause 5.0 - Documents

Value Added Tax

Provision is made in the summary page of these **bills of quantities** for the inclusion of Value Added Tax (VAT)

Priced document as specification

Clause 5.4 is deemed to be deleted

The **principal agent** shall decide which portion of the **priced document** may be used as a specification of **materials and goods** or methods, if any

Electronic issue of drawings

Some drawings for this project will be issued electronically and the **contractor** shall be deemed to have received such drawings on the date that such drawings have been dispatched electronically [5.6]

Carried to Collection R

F:..... V:..... T:..... Item

6 Clause 6.0 - **Employer's agents**

Delegated authority

The authority of the **principal agent** to issue **contract instructions** [17.1] and perform duties for specific aspects of the **works** is delegated to **agents** as follows [6.2]. This does not preclude the **principal agent** from issuing such **contract instructions**:

1. Architect

1.1 Duties [6.2] :

The architect is responsible for the architectural design, functional design and quality inspection of the **works**

1.2 **Contract instructions** [6.2; 17.1] :

1.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the **agreement** other than in the **JBCC** Principal Building Agreement

1.2.2 Alteration to design, standards or quantity of the **works** provided that such **contract instructions** shall not substantially change the scope of the **works**

1.2.3 The **site** [13.0]

1.2.4 Compliance with the **law**, regulations and bylaws [2.1]

1.2.5 Provision and testing of samples of **materials and goods** and/or of finishes and assemblies of elements of the **works**

1.2.6 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]

1.2.7 Removal or re-execution of work

1.2.8 Removal or substitution of any **materials and goods**

1.2.9 Protection of the **works**

1.2.10 Making good physical loss and repairing damage to the **works** [23.2.2]

1.2.11 Rectification of **defects** [21.2]

1.2.12 A **list for practical completion** specifying outstanding or defective work to be rectified to achieve **practical completion**, a **list for completion** and a **list for final completion** specifying outstanding or defective work to be rectified to achieve **final completion**

Carried to Collection R

1.2.13 Expenditure of **budgetary allowances**, **prime cost amounts** and **provisional sums**

1.2.14 Appointment of a **subcontractor** [14.0; 15.0]

1.2.15 Work by **direct contractors** [16.0]

1.2.16 On suspension or termination, protection of the **works**, removal of **construction equipment** and surplus **materials and goods** [29.0]

2. Quantity surveyor

2.1 Duties [6.2] :

The quantity surveyor is responsible for all measurements, valuations, financial assessments and all other quantity surveying and cost control functions of the **works**

2.2 **Contract instructions** [6.2; 17.1] :

2.2.1 No **contract instructions** delegated to the quantity surveyor

3. Civil and structural engineer

3.1 Duties [6.2] :

The civil and structural engineer is responsible for all aspects of civil and structural engineering design and quality inspection of the **works**

3.2 **Contract instructions** [6.2; 17.1] :

3.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the **agreement** other than in the **JBCC** Principal Building Agreement

3.2.2 Alteration to design, standards or quantity of the **works** provided that such **contract instructions** shall not substantially change the scope of the **works**

3.2.3 The **site** [13.0]

3.2.4 Compliance with the **law**, regulations and bylaws [2.1]

3.2.5 Provision and testing of samples of **materials and goods** and/or of finishes and assemblies of elements of the **works**

3.2.6 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]

3.2.7 Removal or re-execution of work

3.2.8 Removal or substitution of any **materials and goods**

Carried to Collection R

3.2.9 Protection of the **works**

3.2.10 Making good physical loss and repairing damage to the **works** [23.2.2]

3.2.11 Rectification of **defects** [21.2]

3.2.12 A **list for practical completion** specifying outstanding or defective work to be rectified to achieve **practical completion**, a **list for completion** and a **list for final completion** specifying outstanding or defective work to be rectified to achieve **final completion**

3.2.13 Expenditure of **budgetary allowances**, **prime cost amounts** and **provisional sums**

4. Mechanical engineer

4.1 Duties [6.2] :

The mechanical engineer is responsible for all aspects of mechanical engineering design and quality inspection of the **works** and, where appointed by the **employer** for quantity surveying services in respect of the mechanical installations, for all measurements, valuations, financial assessments and all other quantity surveying and cost control functions

4.2 **Contract instructions** [6.2; 17.1] :

4.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the **agreement** other than in the **JBCC** Principal Building Agreement

4.2.2 Alteration to design, standards or quantity of the **works** provided that such **contract instructions** shall not substantially change the scope of the **works**

4.2.3 Compliance with the **law**, regulations and bylaws [2.1]

4.2.4 Provision and testing of samples of **materials and goods** and/or of finishes and assemblies of elements of the **works**

4.2.5 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]

4.2.6 Removal or re-execution of work

4.2.7 Removal or substitution of any **materials and goods**

4.2.8 Protection of the **works**

4.2.9 Making good physical loss and repairing damage to the **works** [23.2.2]

4.2.10 Rectification of **defects** [21.2]

Carried to Collection R

4.2.11 A **list for practical completion** specifying outstanding or defective work to be rectified to achieve **practical completion**, a **list for completion** and a **list for final completion** specifying outstanding or defective work to be rectified to achieve **final completion**

4.2.12 Expenditure of **budgetary allowances**, **prime cost amounts** and **provisional sums**

5. Electrical/Electronics engineer

5.1 Duties [6.2] :

The electrical engineer is responsible for all aspects of electrical and electronics engineering design and quality inspection of the **works** and, where appointed by the **employer** for quantity surveying services in respect of the electrical installations, for all measurements, valuations, financial assessments and all other quantity surveying and cost control functions

5.2 **Contract instructions** [6.2; 17.1] :

5.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the **agreement** other than in the **JBCC** Principal Building Agreement

5.2.2 Alteration to design, standards or quantity of the **works** provided that such **contract instructions** shall not substantially change the scope of the **works**

5.2.3 Compliance with the **law**, regulations and bylaws [2.1]

5.2.4 Provision and testing of samples of **materials and goods** and/or of finishes and assemblies of elements of the **works**

5.2.5 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]

5.2.6 Removal or re-execution of work

5.2.7 Removal or substitution of any **materials and goods**

5.2.8 Protection of the **works**

5.2.9 Making good physical loss and repairing damage to the **works** [23.2.2]

5.2.10 Rectification of **defects** [21.2]

5.2.11 A **list for practical completion** specifying outstanding or defective work to be rectified to achieve **practical completion**, a **list for completion** and a **list for final completion** specifying outstanding or defective work to be rectified to achieve **final completion**

5.2.12 Expenditure of **budgetary allowances**, **prime cost amounts** and **provisional sums**

6. Health and safety consultant

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6.1 Duties [6.2] :

The health and safety consultant is responsible for all aspects of health and safety of the **works**. Without derogating from the generality thereof, the health and safety consultant will perform the following specific functions and duties in respect of the health and safety aspects of the **works**. He shall:

6.1.1 Act as the **employer's agent** in terms of the Construction Regulations issued in terms of the Occupational Health and Safety Act, 1993 as amended

6.1.2 Prepare and update the health and safety specification for the **works**

6.1.3 Agree with the **contractor** the health and safety plan for the **works**

6.1.4 Carry out regular audits to ensure adherence to the safety plan and compliance with the act and regulations

6.1.5 Stop the execution of the **works** where the agreed specification or plan is not adhered to

F:..... V:..... T:..... Item

7 Clause 7.0 - Design responsibility

F:..... V:..... T:..... Item

Insurances and securities (A8-A11)

8 Clause 8.0 - **Works** risk

F:..... V:..... T:..... Item

9 Clause 9.0 - Indemnities

F:..... V:..... T:..... Item

10 Clause 10.0 - Insurances
Clause 10.1.1 - Contracts Works Insurance

'the contractor shall be responsible for effecting and maintaining the contract works insurance for the full duration of the contract period. The insured amount for the full scope of works shall be 120% of the contract amount

Clause 10.1.2 - Supplementary Insurance
Clause 10.1.3 - Public Liability Insurance
Clause 10.1.4 - Removal of Lateral Support Insurance - N/A
Clause 10.1.5 - Other Insurances - N/A

F:..... V:..... T:..... Item

Carried to Collection R

Section No. 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

11 Clause 11.0 - **Securities**

Clause 11.1 - Guarantee for construction

F:..... V:..... T:..... Item

The contractor shall provide to the employer a **guarantee for construction** within fifteen (15) working days of acceptance of the contractor's tender

Clause 11.5 - Guarantee for payment

The employer shall not provide to the contractor a **guarantee for payment**. The contractor shall waive his lien or right of continuing possession of the works [11.10]

Extension of waiver of lien

The **contractor** shall ensure that a waiver of lien is included in all subcontracts and that the **works** executed on the **site** are kept free of all liens and other encumbrances at all times [11.10]

F:..... V:..... T:..... Item

Execution (A12 - A17)

12 Clause 12.0 - Obligations of the **parties**

Office accommodation

The **contractor** shall provide, maintain and remove on **practical completion** air conditioned office accommodation with suitable tables and chairs for meetings to be held on the **site**. Such offices shall be kept clean and fit for use at all times [12.2.18]

Notice board

The **contractor** shall erect in a position approved by the **principal agent**, maintain and remove on **practical completion** a notice board recommended by the South African Institute of Architects and as approved by the **principal agent** listing the names and logos of the **employer**, the **contractor** and the professional consultants. No subcontractor or supplier notice boards may be erected unless permission is granted by the **principal agent** for such notice boards to be erected [12.2.18]

Statutory and other notices

The **contractor** shall submit and/or comply with all statutory and other notices that may be required by any local or other authority in order not to cause any delay to the commencement of the **works** by the **contractor**. The **contractor** shall pay all deposits or fees in this regard

It is, however, specifically recorded that the **employer** shall be responsible for the timeous approval of building plans by any local or other authorities and the payment of any fees or charges related thereto

Carried to Collection R

Section No. 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

	F:..... V:..... T:.....	Item	
13	Clause 13.0 - Setting out		
	F:..... V:..... T:.....	Item	
14	Clause 14.0 - Nominated **subcontractors**		
	F:..... V:..... T:.....	Item	
15	Clause 15.0 - Selected **subcontractors**		
	F:..... V:..... T:.....	Item	
16	Clause 16.0 - **Direct contractors**		
	In respect of **direct contractors** the **contractor** shall:		
	1. Designate an area for the **direct contractor** to establish a temporary office and workshop and storage of equipment and materials		
	2. Allow the use of personnel welfare facilities, where provided		
	3. Provide water, lighting and single phase electric power to a position within 50m of the place where the direct contract work is to be carried out, other than fuel or power for commissioning of any installation		
	4. Permit the **direct contractor** to use erected scaffolding, hoisting facilities, etc. provided by the **contractor**, in common with others having the like right, while it remains erected on the **site** [16.1]		
	F:..... V:..... T:.....	Item	
17	Clause 17.0 - **Contract instructions**		
	Site instructions		
	Instructions issued on **site** are to be recorded in a site instruction book which is to be supplied and maintained on **site** by the **contractor**		
	F:..... V:..... T:.....	Item	
	Completion (A18 - A24)		
18	Clause 18.0 - Interim completion	N/A	
19	Clause 19.0 - **Practical completion**		
	F:..... V:..... T:.....	Item	
	Carried to Collection	R	

20	Clause 20.0 - Completion in **sections**		
	F:..... V:..... T:.....	Item	
21	Clause 21.0 - **Defects** liability period and **final completion**		
	A 2.5% retention shall apply. The maintenance period shall be 12 months.		
	F:..... V:..... T:.....	Item	
22	Clause 22.0 - **Latent defects** liability period		
	F:..... V:..... T:.....	Item	
23	Clause 23.0 - Revision of the date for **practical completion**		
	Adverse weather conditions		
	The contract duration includes a monthly allowance of 3 working days for adverse weather conditions [23.1.1] during which rainfall exceeds 10mm per day. These days shall be reflected on the critical path of the construction programme. Where the programmed delays for adverse weather conditions exceed the actual delays incurred the date for practical completion will not be adjusted. Where the actual delays incurred for adverse weather conditions exceed the programmed delays and such delays have impacted on the critical path of the construction programme, the date for practical completion will be adjusted should the requirements of Clause 23.0 be satisfied		
	Substitution of materials and goods		
	The removal or substitution of any **materials and goods** which do not conform to the specification or the **contract drawings** shall not constitute grounds for the extension of the **construction period** nor for the adjustment of the **contract value** [17.1.8; 23.1 & 2]		
	F:..... V:..... T:.....	Item	
24	Clause 24.0 - **Penalty** for late or non-completion		
	F:..... V:..... T:.....	Item	
	<u>Payment (A25 - A27)</u>		
25	Clause 25.0 - Payment		
	Carried to Collection	R	

Prices submitted

Where prices are submitted by the **contractor** or **subcontractor** during the progress of the **works** in respect of **contract instructions** or in regard to a claim under the terms of this **agreement** and notwithstanding the fact that such prices may be used in an interim **payment certificate**, there is to be no presumption of acceptance. Should the **principal agent** wish to accept any such prices prior to the issue of the **certificate of final completion**, it shall be in writing

Clause 25 amended to read 'The employer shall pay to the contractor the amount certified in interim payment certificate within thirty (30) calendar days of the date of issue of the payment certificate or the contractors tax invoice whichever is the later date'

Materials and goods stored off site shall not be included in the amount authorised for payment unless the requirements for an Advanced Payment Guarantee are met

F:..... V:..... T:..... Item

26 Clause 26.0 - Adjustment of the **contract value** and **final account**

Fluctuations in costs

All fluctuations in costs, with the exception of fluctuations in the rate of Value Added Tax, shall be for the account of the **contractor** [26.9.5]

Tenant installation/user requirements delayed

There is a possibility that certain works related to tenant installation/user requirements may have to be delayed and may consequently not be executed prior to **practical completion**

Should the **contractor** be instructed to do so he shall execute this work under the conditions pertaining to this **agreement** on the basis that a separate amount for **preliminaries** appurtenant to this work (if applicable) is agreed to between the **contractor** and the **principal agent** and on condition that instruction to proceed with such work is given to him within a period of three (3) calendar months after the date of **practical completion** of the **works**

The contractor shall not receive any mark-up for overheads and profit on any omission of tenant installation work or tenant installation work by others. Claims of loss of profit shall not be considered

The **employer** reserves the right to omit such work without compensation to the **contractor** for loss of profit or any other loss which the **contractor** may suffer as a result of such omission

Cost of claims

All costs incurred by the **contractor** in the preparation of claims shall be borne by the **contractor**. This provision shall not preclude an adjudicator or an arbitrator appointed in terms of this **agreement** [30.6 & 7] from making a determination on costs

Carried to Collection R

Section No. 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

Claims from subcontractors

The **contractor** shall review, assess and adjudicate any claims received by him from any **subcontractor** and thereafter submit same to the **principal agent** with a recommendation in order to assist the **principal agent** in adjudicating the claim [26.6]

F:..... V:..... T:..... Item

27 Clause 27.0 - Recovery of expense and/or loss

F:..... V:..... T:..... Item

Suspension and termination (A28 - A29)

28 Clause 28.0 - Suspension by the **contractor**

F:..... V:..... T:..... Item

29 Clause 29.0 - Termination

F:..... V:..... T:..... Item

Dispute resolution (A30)

30 Clause 30.0 - Dispute resolution

F:..... V:..... T:..... Item

31 **Agreement**

The required information of the **parties** and the amount of the **contract sum** shall be inserted in the **agreement** for signature of the **agreement** by the **parties**

F:..... V:..... T:..... Item

32 **Contract data**

Tenderer's selections

Before submission of his tender the **contractor** is to complete the tenderer's selections in the **contract data**

F:..... V:..... T:..... Item

SECTION B: GENERAL PRELIMINARIES

Carried to Collection R

Section No. 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

	Definitions and interpretation (B1)		
33	Clause 1.1 - Definitions		
	F:..... V:..... T:.....	Item	
34	Clause 1.2 - Interpretation		
	F:..... V:..... T:.....	Item	
	Documents (B2)		
35	Clause 2.1 - Checking of documents		
	F:..... V:..... T:.....	Item	
36	Clause 2.2 - Provisional **bills of quantities Yes**		
	Multiple procurement		
	These **bills of quantities** are in multiple procurement format ie the "wet trades" - plumbing and drainage - are provisionally measured and the subsequent trades are **budgetary allowances** and **provisional sums. A portion of the works are also measured in SMME Packages as a separate Section.**		
	F:..... V:..... T:.....	Item	
37	Clause 2.3 - Availability of **construction information**		
	F:..... V:..... T:.....	Item	
38	Clause 2.4 - Ordering of **materials and goods**		
	F:..... V:..... T:.....	Item	
	Previous work and adjoining properties (B3)		
39	Clause 3.1 - Previous work - dimensional accuracy		
	F:..... V:..... T:.....	Item	
40	Clause 3.2 - Previous work - **defects**		
	F:..... V:..... T:.....	Item	
41	Clause 3.3 - Inspection of adjoining properties		
	F:..... V:..... T:.....	Item	
	Carried to Collection	R	

The site (B4)

42 Clause 4.1 - Handover of **site** in stages

F:..... V:..... T:..... Item

43 Clause 4.2 - Enclosure of the **works**

Hoarding will be required to isolate areas; this hoarding has been allowed for in the bills of quantities. The Tenders is to note that the Perimeter fence is replaced completely and that the site must remain secured at all times during construction. The Tender must allow for securing the site in his tender price submitted either by appropriate temporary hoarding for the perimeter of the site or additional security measured that are put in place. Item

F:..... V:..... T:.....

44 Clause 4.3 - Geotechnical and other investigations

F:..... V:..... T:..... Item

45 Clause 4.4 - Encroachments

The contractor shall notify the principal agent if any encroachments of adjoining foundations, buildings, structures, pavements, boundaries, etc. exist in order that the necessary arrangements may be made for the rectification of any such encroachment

F:..... V:..... T:..... Item

46 Clause 4.5 - Existing premises occupied

. The existing CHC will be occupied and the contractor will be given certain hoarded off areas as agreed with the CHC to work on

F:..... V:..... T:..... Item

47 Clause 4.6 - Services - known

F:..... V:..... T:..... Item

Management of contract (B5)

48 Clause 5.1 - Management of the **works**

F:..... V:..... T:..... Item

49 Clause 5.2 - Progress meetings

F:..... V:..... T:..... Item

Carried to Collection R

Section No. 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

50	Clause 5.3 - Technical meetings		
	F:..... V:..... T:.....	Item	
	Samples, shop drawings and manufacturer's instructions (B6)		
51	Clause 6.1 - Samples of materials		
	F:..... V:..... T:.....	Item	
52	Clause 6.2 - Workmanship samples		
	F:..... V:..... T:.....	Item	
53	Clause 6.3 - Shop drawings		
	F:..... V:..... T:.....	Item	
54	Clause 6.4 - Compliance with manufacturer's instructions		
	F:..... V:..... T:.....	Item	
	Deposits and fees (B7)		
55	Clause 7.1 - Deposits and fees		
	F:..... V:..... T:.....	Item	
	Temporary services (B8)		
56	Clause 8.1 - Water		
	F:..... V:..... T:.....	Item	
57	Clause 8.2 - Electricity		
	F:..... V:..... T:.....	Item	
58	Clause 8.3 - Ablution and welfare facilities		
	Clause 8.3 - Ablution and welfare facilities in compliance to the provisions of the Construction Regulations 2014 issued in terms of the Occupational Health and Safety Act, 1993 as amended: Section (30): Sub-section (1)(a) - Shower facilities after consultation with the employees or the employees representatives, or at least one shower facility for every 15 persons; Sub-section (1)(b) - at least one sanitary facility for each sex and for every 30 workers; Sub-section (1)(c) - changing facilities for each sex and Sub-section (1)(d) - sheltered eating areas		
	F:..... V:..... T:.....	Item	
	Carried to Collection	R	

Section No. 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

59	Clause 8.4 - Communication facilities		
	F:..... V:..... T:.....	Item	
	Prime cost amounts (B9)		
60	Clause 9.1 - prime cost amounts		
	F:..... V:..... T:.....	Item	
	Attendance on subcontractors (B10)		
61	Clause 10.1 - General attendance		
	F:..... V:..... T:.....	Item	
62	Clause 10.2 - Special attendance		
	F:..... V:..... T:.....	Item	
	General (B11)		
63	Clause 11.1 - Protection of the **works**		
	F:..... V:..... T:.....	Item	
64	Clause 11.2 - Protection/isolation of existing **works** and **works** occupied in **sections**		
	F:..... V:..... T:.....	Item	
	Carried to Collection	R	

Section No. 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

65	Clause 11.3 - Security of the **works** The contractor shall be briefed on the restrictions of movement, servitudes, access control, buildings in use, security requirements and security clearances, working hours, etc. and the employers control at all times. The contractor shall not extend his operations into any restricted or undefined areas Work shall be carried out during normal working hours. Any extended times or approval or overtime work shall be considered and approved by the PA. The contractor shall comply with the employers rules for the control of delivery of materials and goods into the site and for the removal of such items from the site The Contractor will be responsible for ensuring the security and protection of all material, hand tools, power tools, plant, equipment, machinery, etc. stored on the site The Contractor will be required to make arrangements with the Employer, through the Principal Agent, for the use of and reimbursement for the security measures currently in force and operational on the site he Tenders is to note that the Perimeter fence is replaced completely and that the site must remain secured at all times during construction. The Tender must allow for securing the site in his tender price submitted either by appropriate temporary hoarding for the perimeter of the site or additional security measured that are put in place. F:..... V:..... T:.....	Item	
66	Clause 11.4 - Notice before covering work F:..... V:..... T:.....	Item	
67	Clause 11.5 - Disturbance **Disturbance** All work is to be carried out in such a manner as to cause no unacceptable or unreasonable dust, noise, vibrations, nuisance, inconvenience, annoyance and the like to the public, others, other properties and traffic in so far as they exceed the permissible limitations set by government legislation or by the local authority. Any delays, stoppages and the like arising from or in order to comply with the above will not constitute grounds for an adjustment to the **construction period** or **contract value** whatsoever F:..... V:..... T:.....	Item	
68	Clause 11.6 - Environmental disturbance **Controlling all forms of pollution** The **contractor** shall be responsible for and take all precautions in controlling by whatever means necessary all forms of pollution emanating from the **site** during the **construction period** due inter alia to noise, artificial light, wind-blown sand, dust, deposits of mud, etc.		
	Carried to Collection	R	

	The **contractor** is to ensure that all roads which border the **site** and are used by the **contractor** during the execution of the **works** are kept clean and free of any dirt or debris caused by the execution of the **works**		
	F:..... V:..... T:.....	Item	
69	Clause 11.7 - **Works** cleaning and clearing		
	F:..... V:..... T:.....	Item	
70	Clause 11.8 - Vermin		
	F:..... V:..... T:.....	Item	
71	Clause 11.9 - Overhand work		
	F:..... V:..... T:.....	Item	
72	Clause 11.10 - Tenant installations		
	F:..... V:..... T:.....	Item	
73	Clause 11.11 - Advertising		
	F:..... V:..... T:.....	Item	
	SECTION C: SPECIFIC PRELIMINARIES		
74	Warranties for materials and workmanship		
	Where warranties for materials and/or workmanship are called for, the **contractor** shall obtain a written warranty, addressed to the **employer**, from the entity supplying the materials and/or executing the work and shall deliver same to the **principal agent** on **final completion** of the contract		
	The warranty shall state that workmanship, materials and installation are warranted for a specific period from the date of **practical completion** and that any **defects** that may arise during the specified period shall be made good at the expense of the entity supplying the materials and/or doing the work, upon written **notice** to do so		
	The warranty will not be enforced if the work is damaged by **defects** in the execution of the **works**, in which case the responsibility for replacement shall rest entirely with the **contractor**		
	F:..... V:..... T:.....	Item	
	Carried to Collection	R	

75	Overtime Should overtime be required to be worked for any reason whatsoever, the cost of such overtime is to be borne by the **contractor** unless the **principal agent** has specifically authorised, prior to execution thereof, that costs for such overtime are to be borne by the **employer** F:..... V:.....T:.....	Item	
76	Cooperation of the **contractor** for cost management It is specifically agreed that the **contractor** accepts the obligation of assisting the **principal agent** in implementing proper cost management. The **contractor** will be advised by the **principal agent** of all cost management procedures which will be implemented to ensure that the **contract value** does not exceed the budget F:..... V:.....T:.....	Item	
77	Health and safety Without limiting the generality of the provisions of clause 2.0, the contractor's attention is drawn to the provisions of the Construction Regulations issued in terms of the Occupational Health and Safety Act, 1993 as amended. It is specifically stated that the employer shall prepare a documented health and safety specification for the works and that the employer shall ensure that the contractor has made provision for the cost of health and safety measures during the execution of the works. The contractor shall price the Pricing schedule for Health, Safety and Environment as per the pricing schedule included in Bill No. 2 as part of the Preliminaries Section. Provision for pricing of the Occupational Health and Safety Act, Construction Regulations and Health and Safety Specification is made under this clause and under Bill No. 2 and it is explicitly pointed out that all requirements of the aforementioned are deemed to be priced hereunder and no additional claims in this regard shall be entertained. The **contractor** shall: 1. Comply with the health and safety specification for the **works** 2. Prepare and agree with the health and safety consultant the health and safety plan for the **works** 3. Cooperate with the health and safety consultant in all respects 4. Manage the compliance of all subcontractors with the regulations and with the health and safety plan and specification 5. Conform to the conditions contained in the **employer's** health and safety specification F:..... V:..... T:.....	Item	
	Carried to Collection	R	

78	Reporting by the Contractor The **Contractor** is required to complete a **CONTRACTOR MONTHLY REPORT** which is to be submitted together with the **Contractor's** payment claim Payment of the **Contractor** is conditional on this information being accurate and timeously provided Payment shall be subject to the **Contractor** giving the **Employer** a tax invoice for the amount due. The **Contractor** is to take note of the following requirements - At the bottom of the **CONTRACTOR MONTHLY REPORT**, the **Site Agent**, **Clerk of Works**, **CLO** or **Contractor** must sign the document as proof that the people indicated have worked the number of days F:..... V:.....T:.....	Item	
79	Administration The **Contractor** must allow for **all costs** (including any profit or attendance) associated with the administration, appointment, training and/or payment of the CLO, Built Environment Interns, Training of Local Labour, Students **as applicable** and included in this tender document (refer **PROVISIONAL SUMS** section). No additional claims in this regard shall be entertained F:..... V:.....T:.....	Item	
80	Advertising rights The **employer** may elect to contract with advertising agencies for the erection of advertising hoardings, banners, wraps or the like for the duration of the contract. The **contractor** shall not prevent such an arrangement and will assist in the facilitation of same. The position and type of advertising structure to be agreed with the **principal agent** so as not to hinder the **contractor** in meeting his obligations under this **agreement** F:..... V:.....T:.....	Item	
81	Confidentiality The **contractor** undertakes to maintain in confidence any and all information regarding this project and shall obtain appropriate similar undertakings from all **subcontractors** and suppliers. Such information shall not be used in any way except in connection with the execution of the **works** No information regarding this project shall be published or disclosed without the prior written consent of the **employer** F:..... V:.....T:.....	Item	
	Carried to Collection	R	

Section No. 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

82	Media releases All rights of publication of articles in the media, together with any advertising relating thereto or in any way connected with this project, shall vest with the **employer** The **contractor** together with his **subcontractors** shall not, without the prior written consent of the **employer**, cause any statement or advertisement connected with this project to be printed, screened or aired by the media F:..... V:.....T:.....		Item	
83	Socio-Economic Deliverables The Tenderer must allow for **all costs** (including any profit or attendance) associated with the administration, appointment, training and/or payment of the CLO, Built Environment Interns, Training of Local Labour, Students **as applicable** and included in this tender document (refer **PROVISIONAL SUMS** section). No additional claims in this regard shall be entertained F:..... V:.....T:.....		Item	
84	SMME Contractors as Sub-Contractors to the Principal Contractor *The Tenderer must allow for all costs applicable that they may feel will be associated with the successful integration, development of and completion of **SMME Sub-contractors'** work to the approval of the Principal Agent on this project. Approximately **30%** of the building work needs to be allocated to SMME Sub-contractors. Contractors will be required to supply verified monthly statements/schedules (verified by their auditors) indicating the **%** achieved for that month. A cumulative schedule also needs to be maintained for each month that has passed* *Any additional costs that the Tenderer may deem applicable due to the use of **30%** of SMME Sub-contractors, should be allowed for in this item (Preliminaries, OHS, Profit and Attendance, etc.), as no claim for any additional costs attributable to the incorporation and development of SMME Sub-contractors on this project will be entertained after the tenders are submitted* F:..... V:.....T:.....		Item	
85	SMME Monitoring Provision for pricing for the employment, on a full time basis for the duration of the contract, SMME Monitoring. All costs associated with the completion of the SMME Monitoring duties, provision of office facilities and tools of trade are deemed to be priced hereunder. No additional claims in this regard shall be entertained. The above is in strict accordance with the Specification for the Employment of SMME Sub-contractors and all costs should be included in this item for the employment of an SMME Mentor for Monitoring F:..... V:.....T:.....		Item	
		Carried to Collection	R	

Section No. 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

SUMMARY OF CATEGORIES

Category : Fixed R.....

Category : Value R.....

Category : Time R.....

Carried to Collection R

Section No. 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

Section No. 1

Bill No. 1

PRELIMINARIES

COLLECTION

	Page No	Amount
Total Brought Forward from Page No.	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	
	13	
	14	
	15	
	16	
	17	
	18	
	19	
	20	
	21	
Carried Forward	R	

Section No. 1

Bill No. 1

PRELIMINARIES

COLLECTION

	Page No		Amount
Brought Forward		R	
Total Brought Forward from Page No.	22		
	23		
	24		
Carried Forward to Summary of Section No. 1		R	

Item No		Quantity	Rate	Amount

SECTION No. 1: PRELIMINARIES

BILL NO. 2 HEALTH AND SAFETY

MODEL PREAMBLES

The tenderer is referred to the "Model Preambles for Trades 2008" for supplementary and comprehensive expansion of descriptions, appropriate provision for which shall be deemed to have been included in all relevant rates.

SUPPLEMENTARY PREAMBLES

Supplementary preambles and/or specifications are incorporated in these bills of quantities to satisfy the requirements of this project. Such supplementary preambles and/or specifications shall take precedence over the provisions of the General Preambles.

The contractor's prices for all items throughout these bills of quantities shall take account of and include where applicable for all of the obligations, requirements and specifications given in the General Preambles and in any supplementary preambles and/or specifications.

Prior to pricing the principal contractor must familiarize him/herself with the Occupational Health and Safety Act No. 85 Of 1993, Construction Regulations 2014, other relevant Regulations and Standards as well as project specific Health & Safety specifications including any latest amendments.

The items in this Bill do not contain quantities hence the Contractor must insert his own quantities based on his individual requirements to comply with the Health and Safety obligations and demands of the Occupational Health and Safety Act No. 85 of 1993, Construction Regulations 2014, other relevant Regulations and Standards as well as project specific Health & Safety Specifications.

The costs included herein must incorporate Community Liaison Officer (CLO).

OCCUPATIONAL HEALTH AND SAFETY

	Carried to Collection			R

	General:			
1	One full time Construction Health and Safety Officer or Manager (CHSO/M) Full time attendance on site of a SACPCMP-registered CHSO/M from the start of construction until the end of project handover and provisions of telecommunications.	Item		
2	Provision for Health and Safety Management Plans and File inclusive of COVID -19 aligned with project specifications	Item		
3	Allow for the necessary Workman's Compensation Fund or approved Insurer contributions for the duration of the project with and including renewals	Item		
4	Medical certificates of fitness. Medical examination of all employees and certification of fitness for Pre-employment is required. Medical examination of all employees and certification of fitness for Exit-employment is required. Allow for annual medicals for employees if the project duration is more than 12 months.	Item		
5	Emergency Equipment based on the risk exposure and emergency rescue (stretchers, neck brace, first aid kits, fire fighting equipment)	Item		
6	Competent inspectors for equipment such as scaffolding inspectors and lifting machine inspector, etc.	Item		
7	Mandatory training such as risk assessments, legal liability/OHS Act, awareness, first aid incident investigation	Item		
8	Allow for the implementation and maintenance of project-specific H &S Plan & file including implementation of and handling ACM as per Asbestos Abatement Regulations 2020 as per H&S Specification	Item		
	Provide, supply and maintenance for each worker the following SANS approved personal protective equipment & clothing as per the site-specific risk assessments:			
9	Hard hats (High density polyethylene with 6 point lining)	Item		
10	Overall/work suits (100% Cotton)	Item		
	Carried to Collection		R	

Section No. 1
PRELIMINARIES
Bill No. 2
HEALTH AND SAFETY

11	The following PPE to be worn at all times during the handling of ACM as per Asbestos Abatement Regulations 2020 • Disposable overall • Eye protection • FF3 - Particulate masks • Gloves	Item		
12	Reflective vests with visible marking of contractor and proof of induction	Item		
13	Safety boots/shoes (Steel-toe)	Item		
14	Ear Plugs/Muffs	Item		
15	Dust Mask FFP2	Item		
16	Safety goggles	Item		
17	Safety gloves	Item		
18	Respirators	Item		
19	Safety harness	Item		
20	Permit board	Item		
21	Barricading and hoarding for fall arrest, SANS approved safety netting (orange colour with minimum of 1,2 meters high)	Item		
22	Personal fall arrest and rescue equipment with and including lifelines and associated equipment	Item		
23	Temporary handrails, toe boards other than for access to scaffolding	Item		
24	Construction information, warning signage, posters	Item		
25	Allow for fire extinguishers and fire fighting equipment	Item		
26	Safe lifting equipment for lifting and lowering pipes, lifting tackles and slings	Item		
27	Allow for provision of telecommunication facilities for the appointed OHS officer	Item		
28	Provide for appointment of responsible and competent person/s to manage and supervise the works and administer and enforce health and safety on site	Item		
	Carried to Collection		R	

Section No. 1
PRELIMINARIES
Bill No. 2
HEALTH AND SAFETY

29	Allow for provision of Basic medical Preparedness and Response equipment & at least Level 2 First Aider/s	Item			
	Environmental:				
30	Dust control measure for the prevention of dust nuisance	Item			
31	Provision for spill kits, drip trays	Item			
32	Housekeeping – provide for the waste bins, safe collection and disposal of waste material from site by an approved method	Item			
	Carried to Collection			R	

Section No. 1

Bill No. 2

HEALTH AND SAFETY

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	27		
	28		
	29		
	30		
Carried Forward to Summary of Section No. 1		R	

Section No. 1
PRELIMINARIES
Bill No. 2
HEALTH AND SAFETY

SECTION SUMMARY - PRELIMINARIES

Bill No		Page No	Amount
1	PRELIMINARIES	26	
2	HEALTH AND SAFETY	31	

Carried to FINAL SUMMARY R

Section No. 1
PRELIMINARIES

Item No		Quantity	Rate	Amount

SECTION No. 2: BUILDING WORKS

BILL No. 1: ALTERATIONS (PROVISIONAL)

The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents

SUPPLEMENTARY PREAMBLES

All work described in this bill is to be to be executed in/on existing buildings and prices shall allow for this

General

Descriptions that include the text ".... take out/up/off/down and remove ....." shall indicate that the Tenderer shall allow that these items/materials shall become his property and shall be removed from site, or dumped at a site of disposal that the Tenderer has identified.

Descriptions that include the text "..... make good ....." shall indicate that the Tenderer shall allow for all associated costs of repairing disturbed finishes, costs of disconnecting/removing the items/materials and preparatory work to receive new items/materials.

Descriptions that include the text "..... carefully take out/up/remove ....." shall indicate that the Tenderer shall allow for all possible care in the removal process and temporarily storage processes, as these items/materials will be re-used elsewhere.

All costs associated with the above will be deemed to be included in the Tenderer's prices.

The Contractor shall carry out the whole of the works with as little mess and noise as possible and with a minimum of disturbance to adjoining premises and their tenants. He shall provide proper protection and provide, erect and remove when directed, any temporary tarpaulins that may be necessary during the progress of the works, all to the satisfaction of the Principal Agent.

Making good of finishes shall include making good of the brick and/or concrete surfaces onto which the new finishes are applied, where necessary

Carried to Collection R

Section No. 2
BUILDING WORKS
Bill No. 1
ALTERATIONS (PROVISIONAL)

The Contractor will be required to take dimensions when fitting new items/elements to existing structures/frames, etc. as there may be some minor adjustments required and it shall be deemed that all prices shall include such minor adjustment work.

Viewing of the site

Before submitting his tender, the Contractor shall visit the site and satisfy himself as to the nature and extent of the work to be done and the value of the materials contained in the buildings or portions of the buildings to be demolished. No claim for any variations of the contract sum in respect of the nature and extent of the work or of inferior or damaged materials will be entertained.

Removal and disposal of harmful material

Tenderers are to note that some of the buildings to be altered, contain harmful materials/elements:

Refer to the project scope of works, asbestos to be removed per building.

The items that are measured in this section are described, where applicable, as "asbestos cement containing material".

Tenderers have to price under alterations also for a Comprehensive Asbestos Plan, Pre-production sampling, Clearance Sampling and Clearance Report/Certificate.

It will be deemed that Tenderers' prices received have fully taken the above requirements into consideration and priced accordingly to allow for the correct procedure of removal and disposal thereof to a designated dumping site in terms of the latest legislation applicable. No extra cost will be entertained for not pricing for the correct legislative procedures. The asbestos removal must be done by a registered asbestos removal contractor. The asbestos removal must be read in conjunction with the OHS Specification, Baseline Risk Assessment included in this tender document. All Asbestos removal must be done and comply to the Asbestos Abatement Regulation 2020.

All removal or working with materials containing asbestos must be done in accordance with a methodology as set out by the Contractor and approved by the Health and Safety Agent.

Removal of structural roofs:

All removal of structural roof members to be done strictly in accordance with the Engineers instructions. Temporary bracing and support requirements to be checked by the Engineer prior to commencing with the works.

Carried to Collection R

Section No. 2
BUILDING WORKS
Bill No. 1
ALTERATIONS (PROVISIONAL)

	CLEANING/PLASTERING OF EXISTING FACED BRICKWORK SURFACES				
	Where descriptions refer to "..... clean existing facebrick walls and prepare to receive new plaster ....", Tenderers shall allow for the cleaning off of all fungal matter by whatever means and water pressure cleaning the areas to prepare it for new plaster.				
	Generally, the joints' depth of the existing faced brickwork is approximately 6 - 10mm; the type of existing faced brickwork is not described and Tenderers must acquaint themselves with the nature of this work, prior to submitting tenders.				
1	Clean existing facebrick walls by pressure cleaning to remove all algae, discolourations, dirt, etc.	m2	134		
2	Clean existing concrete floors walls by pressure cleaning to remove all algae, discolourations, dirt, etc.	m2	44		
3	Clean existing concrete roof tiles by pressure cleaning to remove all algae, discolourations, dirt, etc.	m2	100		
	REMOVAL OF EXISTING WORK				
	Comprehensive Asbestos Plan				
4	Comprehensive asbestos plan		Item		
5	Pre-production sampling		Item		
6	Clearance sampling: To state area is clear and safe for normal occupation		Item		
7	Clearance Report: To state area is clear and safe for normal occupation		Item		
	Breaking up/taking down/lifting up and removing:				
8	100mm Thick concrete surface beds inside existing buildings, etc.	m2	11		
	Excavate for and remove fill under surface bed to be demolished (elsewhere measured):				
9	Filling inside existing building	m3	2		
	Break down and remove existing brickwork or blockwork, etc.:				
10	Half brick wall	m2	7		
	Carried to Collection			R	

11	One brick wall	m2	15		
	Break out and remove existing brickwork for new openings:				
12	Form new opening in half brick wall size, 913 x 2032mm high, including new lintol and preparing opening to receive door (elsewhere measured)	No	1		
13	Form new opening in one brick wall size, 913 x 2032mm high, including new lintol and preparing opening to receive door (elsewhere measured)	No	1		
14	Form new opening in 270mm cavity brick wall size, 1200 x 1200mm high, including new lintol, closing cavities and preparing opening to receive window (elsewhere measured)	No	4		
	Take out/up/off/down and remove existing doors, door frames/linings and windows, gates, etc.:				
15	Timber door and frame size 900 x 2100mm high	No	1		
16	Steel gate size 900 x 2100mm high from brick wall and make good disturbed finishes	No	1		
	Take up/down and remove existing roofs, floors, panelling, ceilings, partitions, etc.:				
17	Asbestos cement containing material ceiling, including brandering	m	50		
18	Asbestos cement containing material downpipes including angles, bends and accessories	m	25		
19	Asbestos cement containing material gutters and accessories	m	55		
20	Asbestos cement containing material fascias	m	55		
21	Asbestos cement containing material eaves soffit complete with cornices, timber brandering, etc.	m2	45		
22	Concrete roof tiles	m2	120		
23	Suspended ceiling with shadowline cornice and 1200 x 600mm panels	m2	49		
24	Lightweight steel hipped end by carefully removing trusses, purlins, bracing, etc. and prepare to receive new trusses (elsewhere measured)(size approximately 8,00m x 5,60m)		Item		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 1
ALTERATIONS (PROVISIONAL)

	Take up and remove existing floor sheeting complete with adhesive from screed and prepare screed to receive new finish (elsewhere measured):				
25	Vinyl floor sheeting	m2	68		
26	Vinyl floor skirting 100mm high	m2	50		
	Hack up/off and remove existing internal plaster and wall finishes/tiles including preparing wall surfaces for new plaster or tiles (elsewhere measured):				
27	On walls generally	m2	4		
	Take out existing glazing from aluminium window, clean out opening to receive new glazing (approximate sizes indicated) (elsewhere measured):				
28	Pane size 600 x 510mm high	No	1		
29	Pane size 1200 x 510mm high	No	2		
30	Pane size 600 x 1105mm high	No	1		
31	Pane size 1200 x 1105mm high	No	2		
	Take out and remove piping, sanitary fittings, etc. including disconnecting piping from fittings and making good floor and wall finishes (making good tiling and paintwork elsewhere measured):				
32	15mm Copper piping including all fittings, brackets, etc.	m	22		
33	25mm Galvanised piping including all fittings, brackets, etc.	m	12		
34	40/50mm PVC piping including all fittings, brackets, etc.	m	36		
35	Break out brick gully and isolate 110mm sewer system including preparing area for new surface bed (elsewhere measured)	No	1		
36	Decommission 75mm fire hydrant main pipe, isolate main supply, drain system complete, etc.	No	2		
37	Paper towel dispenser from brick wall	No	1		
38	Towel rail complete with two end brackets	No	1		
39	Floor trap assembly in concrete floor, etc.	No	1		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 1
ALTERATIONS (PROVISIONAL)

40	Combination bedpan and washup sink unit size 1980 x 700 x 1000mm high including all fittings, brackets etc.	No	1		
41	Wash hand basin size 560 x 410mm wide including taps, traps, etc.	No	2		
42	Floor mounted WC pan with wall hung cistern	No	2		
	Take out/off and remove existing sundry items, including making good to all screw/bolt holes, etc.:				
43	Wall mounted worktop surface 3000mm long	No	1		

Carried to Collection R

Section No. 2
BUILDING WORKS
Bill No. 1
ALTERATIONS (PROVISIONAL)

Section No. 2

Bill No. 1

ALTERATIONS (PROVISIONAL)

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	33		
	34		
	35		
	36		
	37		
	38		
Carried Forward to Summary of Section No. 2		R	

Section No. 2
BUILDING WORKS
Bill No. 1
ALTERATIONS (PROVISIONAL)

Item No		Unit	Quantity	Rate	Amount

SECTION No. 2: BUILDING WORKS

BILL No. 2: EARTHWORKS (PROVISIONAL)

The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents

EARTHWORKS

SUPPLEMENTARY PREAMBLES

Nature of ground

Description of excavations shall be deemed to include all ground conditions classifiable as earth and where conditions of a more difficult character might be encountered, these are separately measured

Excavations

No claim for rock excavation will be entertained unless the Contractor has timeously notified the Quantity Surveyor thereof prior to backfilling.

Class of Excavations will be in accordance with SABS 1200D Clause 3.1. For the purpose of this project "Soft Rock" will have the same meaning as Intermediate excavations as defined in SABS 1200D Clause 3.1.

Boulder excavation definitions as stated in SABS 1200D will not apply.

Classification of soils and gravel is in accordance with SABS 1200M: 1996 Table 3A & 3B or TRH14.

Open face excavation is in accordance with SANS 2001: Part BE1.

Carting away of excavated material

Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stockpiles situated on the building site

Carried to Collection R

	Dewatering of excavations				
	The Contractor shall allow for removing seepage and other water from subterranean sources from the excavations by pumping, bailing or otherwise.				
	Accurate records of all such dewatering shall be kept to determine the total volume of water so removed and a clear distinction shall be made between water from subterranean sources and other water.				
	Density testing on filling				
	Rates for filling, etc. shall include for all density and soil type testing to prove that the specified compaction is achieved.				
	When additional testing is done on instruction of the principal agent and these tests are successful, they will be paid for additionally.				
	Imported fill				
	"Filling and bedding to trenches etc. to be in compliance with SABS 1200 DB and LB respectively".				
	EXCAVATION, FILLING, ETC. OTHER THAN BULK				
	Excavation in earth not exceeding 2m deep:				
1	Trenches	m3	182		
2	Bases	m3	25		
	Extra over trench and hole excavations in earth for excavation in:				
3	Soft rock	m3	41		
4	Hard rock	m3	21		
	Extra over all excavations for carting off site to a location to be identified by the Contractor:				
5	Surplus material from excavations	m3	182		
	Risk of collapse of excavations:				
6	Sides of trench and hole excavations not exceeding 1,5m deep	m2	623		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 2
EARTHWORKS (PROVISIONAL)

	Keeping excavations free of water:				
7	Keeping excavations free of all water other than subterranean water		Item		
	Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 95% Mod AASHTO dry density:				
8	Backfilling to trenches, holes, etc.	m3	24		
	Compaction of surfaces:				
9	Compaction of ground surface under bases, etc.. including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to a minimum of 90% Mod AASHTO dry density	m2	27		
10	Compaction of ground surface under floors, etc. including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to a minimum of 90% Mod AASHTO dry density	m2	746		
	Earth filling supplied by the Contractor under surface beds or rafts:				
11	G5 Material in accordance with SANS 1200DM in 150mm layers compacted to a minimum of 98% Mod AASHTO dry density	m3	181		
12	G7 Material in accordance with SANS 1200DM in 150mm layers compacted to a minimum of 98% Mod AASHTO dry density	m3	61		
	Sand filling supplied by the contractor:				
13	Under floors	m3	28		
	Prescribed density tests on filling:				
14	Modified AASHTO density test	No	6		
	SOIL POISONING				
	Soil insecticide in accordance with SANS 5859 (compliance certificate will be required after completion):				
15	Under surface beds, etc. including forming and poisoning shallow furrows against foundation walls, etc. filling in and ramming	m2	556		
16	To bottoms and sides of trenches, etc.	m2	742		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 2
EARTHWORKS (PROVISIONAL)

Section No. 2

Bill No. 2

EARTHWORKS (PROVISIONAL)

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	40		
	41		
	42		
Carried Forward to Summary of Section No. 2		R	

Section No. 2
BUILDING WORKS
Bill No. 2
EARTHWORKS (PROVISIONAL)

Item No		Unit	Quantity	Rate	Amount

SECTION No. 2: BUILDING WORKS

BILL No. 3: CONCRETE, FORMWORK & REINFORCEMENT

The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents

SUPPLEMENTARY PREAMBLES

Proprietary products in descriptions

Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted

Concrete

All concrete work to be carried out in accordance with SABS 1200G

Cost of tests

The costs of making, storing and testing of concrete test cubes as required under clause 7 'Tests' of SABS 1200G shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Principal Agent. The testing shall be undertaken by an independent firm or institution nominated by the Contractor to the approval of the Principal Agent (test cubes are measured separately)

Formwork

Description of formwork shall be deemed to include use and waste only (except where described as "left in" or "permanent"), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for reconditioning as necessary before re-use

The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself

Carried to Collection R

	Formwork to soffits of solid slabs, etc. shall be deemed to be slabs not exceeding 250mm thick unless otherwise described Formwork to sides of bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the Engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in "Earthworks" Degree of accuracy: Accuracy II as SABS 1200G Permissible deviations: Flatness of plain surface - 5mm Abrupt changes in a continuous surface - 5mm **Reinforcement** Reinforcement to include 30MPa concrete cover blocks to ensure correct cover to reinforcing				
	UNREINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES				
	15MPa/19mm Concrete:				
1	Blinding under footings, beams and bases (Provisional)	m3	11		
	UNREINFORCED CONCRETE				
	15MPa/19mm Concrete:				
2	Mass concrete infill in wall cavities	m3	0.2		
	REINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES				
	30MPa/19mm Concrete:				
3	Strip footings (Provisional)	m3	40		
4	Bases (Provisional)	m3	7		
	REINFORCED CONCRETE				
	Carried to Collection			R	

	30MPa/19mm Concrete:				
5	Surface beds	m3	56		
6	Beams	m3	13		
7	Slabs not exceeding 250mm thick	m3	6		
8	Columns	m3	2		
9	Rectangular and square stub columns	m3	1		
10	Columns in foundations (Provisional)	m3	1		
	CONCRETE TESTS				
	Test blocks:				
11	Making and testing 150 x 150 x 150mm concrete test cube (Provisional) (Only test cubes that have passed will be reimbursed)	No	58		
	CONCRETE SUNDRIES				
	Smooth power floated finish to top surfaces of concrete:				
12	Surface beds, slabs, etc.	m2	130		
13	Surface beds, slabs, etc. to falls	m2	44		
	ROUGH FORMWORK (DEGREE OF ACCURACY III)				
	Rough formwork to sides:				
14	Square or rectangular stub columns in foundations (Provisional)	m2	11		
15	Square or rectangular columns in foundations (Provisional)	m2	2		
16	Square or rectangular stub columns	m2	47		
17	Square or rectangular columns	m2	2		
18	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	59		
	Rough formwork to sides and soffits:				
19	Beams including propping up exceeding 1,5m and not exceeding 3,5m high above bearing level	m2	114		
	Carried to Collection			R	

20	Slabs including propping up exceeding 1,5m and not exceeding 3,5m high above bearing level	m2	31		
	MOVEMENT JOINTS, ETC.				
	Expansion joints formed of jointex filler with tear off strip between vertical concrete and brick surfaces:				
21	10mm Thick in joint not exceeding 300mm wide	m	377		
	Two layers of 3-ply malthoid, in slip joint between horizontal concrete and brick surfaces:				
22	Slip joint not exceeding 300mm wide	m	62		
	Two layers of 3mm thick hardboard, in slip joint between horizontal concrete and brick surfaces, joint sealed with and including joint sealant:				
23	Slip joint not exceeding 300mm wide	m	35		
	Saw cut joints:				
24	3 x 40mm In top of concrete	m	138		
	STEEL REINFORCEMENT (PROVISIONAL)				
	Mild steel reinforcement to structural concrete work:				
25	8mm Diameter bars	t	0.51		
	High tensile steel reinforcement to structural concrete work:				
26	16mm Diameter bars	t	2.64		
27	12mm Diameter bars	t	2.69		
28	10mm Diameter bars	t	2.61		
	Fabric reinforcement:				
29	Type 193 fabric reinforcement	m2	556		
30	Type 193 fabric reinforcement cut and bent to fit and lapped to existing reinforcement in concrete surface beds inside existing buildings, etc.	m2	11		
31	Type 245 fabric reinforcement in concrete reinforced wall cavities	m2	18		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 3
CONCRETE, FORMWORK & REINFORCEMENT

32	Type 617 fabric reinforcement in concrete surface beds	m2	160		

Carried to Collection R

Section No. 2
BUILDING WORKS
Bill No. 3
CONCRETE, FORMWORK & REINFORCEMENT

Section No. 2

Bill No. 3

CONCRETE, FORMWORK & REINFORCEMENT

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	44		
	45		
	46		
	47		
	48		
Carried Forward to Summary of Section No. 2		R	

Section No. 2
BUILDING WORKS
Bill No. 3
CONCRETE, FORMWORK & REINFORCEMENT

Item No		Unit	Quantity	Rate	Amount
	SECTION No. 2: BUILDING WORKS				
	BILL No. 4: WATERPROOFING				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	SUPPLEMENTARY PREAMBLES				
	Proprietary products in descriptions				
	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted				
	DAMPPROOFING OF WALLS AND FLOORS				
	One layer of 250 micron green polyethylene waterproof sheeting (SANS 952-1985 type C) sealed at laps with PVC self-adhesive tape:				
1	Under surface beds	m2	556		
2	Under surface beds lapped to existing waterproofing inside existing buildings	m2	11		
	One layer of 375 micron embossed polyethylene dampproof course (SANS 952-1985 type B):				
3	In walls, under cills, etc.	m2	13		
	TORCH-ON WATERPROOFING				
	A ten year guarantee on workmanship, material and water tightness is required by the Principal Agent				
	Descriptions of sheet or membrane waterproofing shall be deemed to include additional labour to turn-ups and turn downs.				
	Derbigum WPC bitumen primer or other approved bituminous priming solution, applied to existing or new screed (elsewhere measured):				
4	On flat roofs	m2	42		
	Carried to Collection			R	

	Derbigum SP4 Dual Reinforced and Mineral Slate bitumen-polymer or other approved dual reinforced plastomeric waterproofing bitumen membrane, fully bonded by means of heat fusion, secured to priming solution (elsewhere measured), all in accordance with the manufacturer's instructions:				
5	On flat roofs	m2	31		
6	In turn-ups exceeding 300mm girth	m2	10		
7	In dressing around 100mm diameter outlet (Provisional)	No	4		
	Derbigum or other approved bitumen based aluminium paint (two coats) applied in strict accordance with the manufacturers' instructions:				
8	On bitumen waterproofing membrane, turn-ups, etc.	m2	42		
	Testing:				
9	Allow for flood testing of mastic waterproofing membrane to the satisfaction of the engineer including issuing of a certificate for all areas completed		Item		
	JOINT SEALANTS, ETC.				
	Approved polyurethane sealing compound:				
10	Ream out 3mm Wide saw cut joint by 6mm for a depth of 25mm and filled with compound on polyethelene backing cord	m	138		
11	Rake out 10mm thick joint for a depth of 10mm and fill with compound	m	347		
	Carried to Collection			R	

Section No. 2

Bill No. 4

WATERPROOFING

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	50		
	51		
Carried Forward to Summary of Section No. 2		R	

Section No. 2
BUILDING WORKS
Bill No. 4
WATERPROOFING

Item No		Unit	Quantity	Rate	Amount
	SECTION No. 2: BUILDING WORKS				
	BILL No. 5: ROOF COVERINGS, ETC.				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	SUPPLEMENTARY PREAMBLES				
	Proprietary products in descriptions:				
	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted				
	Fixing				
	Fixing shall be done according to SABS 1200HB with minimum 225mm end laps				
	Pricing				
	Prices for roof covering and cladding are to include for all necessary drive screws, hook bolts, clips, sheet bolts, nuts, washers, etc., for drilling holes for screws and bolts including removing all swarf from the sheeting and all right angle cutting and waste				
	CONCRETE ROOF TILES				
	Marley Homestead or other approved concrete roof tiles with M22 emerald green coating fixed to steel battens (elsewhere measured)				
1	Roof covering with pitch exceeding 25 degrees	m2	990		
2	Ridge capping	m	53		
3	Hip capping	m	91		
4	Extra on last for four way intersection between ridges and valleys	No	2		
	Carried to Collection			R	

	PROFILED METAL SHEETING AND ACCESSORIES				
	Safintra 410 concealed fix roofing sheeting must be installed by an approved Roofing Contractor in strict accordance with the manufacturer's instructions. A ten year guarantee on thickness, workmanship, material and water tightness is required by the Principal Agent (to be supplied by Safal Group/Safintra)				
	The contractor shall include for all raking, cutting and waste when pricing this bill section				
	0,55mm Thick Saflok 410 concealed fix profile roofing Colorplus AZ200 or other approved interlocking aluminium-zinc roof sheeting and all required concealed fixing accessories, fixed to steel purlins (elsewhere measured) at approximately 1200mm centres, in accordance with the manufacturer's instructions:				
5	Roof covering with pitch not exceeding 25 degrees	m2	156		
	0,8mm Thick Concealed Fix flashings and closures, etc. finished to same finish as roof sheeting, including fixing to interlocking roofing on steel and/or timber roof trusses:				
6	Broad flute closers	m	12		
7	Valley gutter 610mm girth six times bent along girth	m	24		
8	Apex flashing	m	12		
9	Barge flashing 660mm girth	m	27		
	RAINWATER DISPOSAL				
	0,9mm Thick Watertite or other approved seamless aluminium gutters and rainwater pipes with ColourTechG4 finish to Rich Ivory colour, including fixing with heavy duty brackets in accordance with the manufacturer's instructions:				
10	125 x 100mm Ogee eaves gutter	m	272		
11	Extra over gutter for stopped end	No	6		
12	Extra over gutter for angle	No	20		
13	Extra over gutter for outlet to suit 100 x 85mm rainwater pipe	No	34		
14	100 x 85mm Rainwater pipe	m	119		
15	Extra over rainwater pipe for bend or shoe	No	34		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 5
ROOF COVERINGS, ETC.

16	Extra over rainwater pipe for eaves offset to 850mm projection	No	34		
	ROOF INSULATION				
	Sisalation 420 FR or other approved heavy industrial grade aluminium foil based insulation:				
17	Insulation laid taut over purlins (at approximately 975mm centres) and fixed concurrent with roof covering, including galvanised steel straining wires, laps, etc.	m2	990		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 5
ROOF COVERINGS, ETC.

Section No. 2

Bill No. 5

ROOF COVERINGS, ETC.

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	53		
	54		
	55		
Carried Forward to Summary of Section No. 2		R	

Section No. 2
BUILDING WORKS
Bill No. 5
ROOF COVERINGS, ETC.

Item No		Unit	Quantity	Rate	Amount
	SECTION No. 2: BUILDING WORKS				
	BILL No. 6: CARPENTRY & JOINERY				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	SUPPLEMENTARY PREAMBLES				
	Proprietary products in descriptions				
	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted				
	GENERAL ROOF TIMBERS				
	Sawn softwood:				
1	38 x 228mm Gangboarding (Provisional)	m	53		
	Wrot softwood:				
2	22 x 222mm Valley boarding	m	28		
	EAVES, VERGES, ETC.				
	Pressed fibre cement:				
3	10 x 300mm Fascia fixed vertically to at end of steel roof trusses (elsewhere measured) including H-profile PVC joint strips, caps, etc.	m	272		
4	10 x 300mm Barge board fixed vertically to at end of steel roof trusses (elsewhere measured) including H-profile PVC joint strips, caps, etc.	m	17		
	DUCT COVERS/CLOSURES				
	Carried to Collection			R	

	10 x 150mm Pressed fibre cement horizontal planks spaced 45mm apart in duct cover assemblies, fixed complete as described:				
5	Assembly to fit 1200mm wide duct opening with planks twice brass screwed at each end to and including 50 x 76mm sawn softwood batten, secured to wall	m	3		
	SOLID TIMBER DOORS				
	Wrot Meranti:				
6	44mm Thick framed, ledged, braced and battened door, formed of 44 x 107mm stiles and top rail, 44 x 222mm top and bottom rail, stiles and top rail rebated for and fitted with and including 22 x 69mm tongue and grooved V-jointed vertical boarding brass screwed to stiles, top rail, braces, middle and bottom ledge, including 40 x 70mm thick grooved and splayed weatherboard, size 813 x 2032mm high	No	3		
	SOLID FLUSH DOORS				
	Solid core laminated doors with 4mm composite board crossbanding for and including 0,8mm thick Linewood Formica or other approved high pressure laminated surface to both sides of door, including 18mm thick Beachwood edge strips all round with slightly round angles, hung to steel door linings:				
7	40mm Thick door size 600 x 2032mm high	No	1		
8	40mm Thick door size 813 x 2032mm high	No	3		
9	Extra over above for forming rectangular cut out size 450 x 280mm high, complete with framing around cut out and supply and securely fit Trox Type AGS-T anodised aluminium louvre	No	3		
10	40mm Thick door size 913 x 2032mm high	No	19		
11	40mm Thick double door in two equal leaves with rounded stiles, overall size 1613 x 2032mm high	No	7		
12	Extra over above for rectangular opening for glazing (elsewhere measured) size 450 x 350mm high, rebated all round for timber glazing beads (elsewhere measured)	No	4		
	FRAMES, ETC.				
	Wrot Meranti:				
13	69 x 107mm Rebated frame plugged to wall	m	20		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 6
CARPENTRY & JOINERY

	BEADS, ARCHITRAVES, ETC.				
	Wrot Meranti:				
14	10 x 15mm Glazing bead planted on	m	6		
	BUMP RAILS, ETC.				
	Max-on-top Avonite wrapped supawood bump rail:				
15	16 x 250mm Twice angle rounded bumprail, covered with 10mm thick high pressure laminate fixed on natural anodized adjustable aluminium brackets, twice plugged to wall at 1000mm centres and intervals, 900mm high from floor	m	137		
	JOINERY FITTINGS (PROVISIONAL)				
	References in the descriptions refer to the respective joinery details on the Architect's Joinery Drawings (refer to attached drawings) appended to these Tender Documents				
	Additionally all prices for doors, drawers, etc. are deemed to include for all ironmongery, etc. as depicted on the Architect's Joinery Drawings indicated above				
	Cupboard Connection or other approved joinery assemblies				
	Wet Areas 1. Carcasses 1.1. 16mm Thick Bisonboard V313 with melamine on both faces in colour to match doors on exposed sides. 1.2. 16mm Thick Bisonboard V313 with white melamine finished on both faces to internal and concealed sides. 1.3. Carcasses are to be fitted with powder-coated adjusters so that the cabinets do not come into contact with the floor. 1.4. 3.2mm Masonite backs. 1.5. Shelves to be 16mm thick Bisonboard V313 with white melamine finished on both faces and all edges. 1.6. All exposed edges to be 2mm PVC impact edging. 1.7. Hinges: Brass piano hinges with chrome screws. Sides of carcass only to extend by 16mm to be flush with outer face of doors and drawers				
	2. Drawers 2.1. 16mm Thick fronts with Bisonboard V313 substrate with melamine on both faces. Edging will be 2mm thick PVC impact edging and must be applied by a continuous hot melt high pressure edging machine. Colour to schedule. 2.2. Carcasses same as 2.1. above. 2.3. Runners: Metal with nylon runner Hettich type with 30kg load capacity.				
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 6
CARPENTRY & JOINERY

3. Wall Units
3.1. 16mm Thick Bisonboard V313 with melamine on both faces in colour to match doors on exposed sides.
3.2. 16mm Thick Bisonboard V313 with white melamine finished on both faces to internal and concealed sides.
3.3. 3.2mm Masonite back.
3.4. Shelves to be 16mm thick Bisonboard V313 with white melamine finished on both faces and edges.
3.6. All exposed edges to be 2mm PVC impact edging.
3.7. Hinges: Chrome plated piano hinges with chrome screws. Sides of carcass to extend by 16mm to be flush with outer face of doors and drawers

4. Doors
4.1. 16mm Thick with Bisonboard V313 core with melamine on both faces. Edging will be 2mm thick PVC and must be applied by a continuous hot melt high pressure edging machine

5. Counter Tops
5.1. Type A: Max-On-Top standard HPL on 32mm thick substrate boarding
5.2. Type B: Fenix NTM 1.2mm Matched colour single sided on 32mm thick substrate boarding

6. Kickplates:
6.1. Type A: Max-On-Top standard HPL on 32mm thick substrate boarding - colour tbc.
6.2. Type B: Fenix NTM 1.2mm Matched colour single sided on 32mm thick substrate boarding

7. Handles: 288mm Brushed mild steel bar handle. Handles to approved sample

<u>Dry Areas</u>
1. Carcasses
1.1. 16mm Thick Bisonboard (chipboard) with melamine on both faces in colour to match doors on exposed sides.
1.2. 16mm Thick Bisonboard (chipboard) with white melamine finished on both faces to internal and concealed sides.
1.3. Carcasses are to be fitted with powder-coated adjusters so that the cabinets do not come into contact with the floor.
1.4. 3.2mm Masonite backs.
1.5. Shelves to be 16mm thick Bisonboard (chipboard) with white melamine finished on both faces and all edges.
1.6. All exposed edges to be 2mm PVC impact edging.
1.7. Hinges: Steel chrome plated piano hinges with chrome screws. Sides of carcass only to extend by 16mm to be flush with outer face of doors and drawers. See detail

2. Drawers
2.1. 16mm Thick fronts with Bisonboard (chipboard) core with

Carried to Collection R

Section No. 2
BUILDING WORKS
Bill No. 6
CARPENTRY & JOINERY

melamine on both faces. Edging will be 2mm thick PVC and must be applied by a continuous hot melt high pressure edging machine. Colour to schedule.
2.2. Carcasses same as 2.1. above.
2.3. Runners: Metal with nylon runner Hettich type with 30kg load capacity.

3. Wall Units
3.1. 16mm Thick Bisonboard (chipboard) with melamine on both faces in colour to match doors on exposed sides.
3.2. 16mm Thick Bisonboard (chipboard) with white melamine finished on both faces to internal and concealed sides.
3.3. 3.2mm Masonite back.
3.4. Shelves to be 16mm thick Bisonboard (chipboard) with white melamine finished on both faces and edges.
3.6. All exposed edges to be 2mm PVC impact edging.
3.7. Hinges: Brass piano hinges with chrome screws. Sides of carcass to extend by 16mm to be flush with outer face of doors and drawers.

4. Doors
4.1. 16mm Thick with Bisonboard (chipboard) core with melamine on both faces. Edging will be 2mm thick PVC and must be applied by a continuous hot melt high pressure edging machine. Colour to schedule.

5. Counter Tops
5.1. Type A: Max-On-Top standard HPL on 32mm thick substrate boarding - colour to be confirmed.
5.2. Type B: Fenix NTM 1.2mm Matched colour single sided on 32mm thick substrate boarding - colour to be confirmed.

6. Kickplates:
6.1. Type A: Max-On-Top standard HPL on 32mm thick substrate boarding - colour to be confirmed.
6.2. Type B: Fenix NTM 1.2mm Matched colour single sided on 32mm thick substrate boarding - colour to be confirmed.

7. Handles: 288mm brushed mild steel bar handle. Handles to approved sample

The references in the descriptions below are to the respective joinery details on the Architect's drawing number 3239-JD

Block A - Gatehouse:

Carried to Collection R

Section No. 2
BUILDING WORKS
Bill No. 6
CARPENTRY & JOINERY

	Security (room 02):				
16	32mm Thick x 750mm wide Max-on-top HPL worktop counter top including cut out for sink (elsewhere measured) over floor mounted unit 900mm high including bearers, finished with 16mm Max-on-top HPL faced boarding as per detail JD C9	m	2.80		
17	32mm Thick x 700mm wide Max-on-top HPL worktop counter top supported with wall bearer and 710mm high x 80mm diameter steel legs, overall size 3850 x 700 x 760mm high, with and including 400 x 550 x 590mm four drawer mobile pedestal as per detail JD B6	No	1		
	Block B - EMS:				
	Offices (rooms 10 & 11):				
18	32mm Thick x 650mm wide Max-on-top HPL worktop counter top supported with wall bearer and 710mm high x 80mm diameter steel legs, overall size 1650 x 700 x 760mm high, with and including 400 x 550 x 590mm four drawer mobile pedestal as per detail JD B6	No	1		
19	32mm Thick x 900mm wide Max-on-top HPL worktop counter top supported with wall bearer and 710mm high x 80mm diameter steel legs, overall size 1850 x 700 x 760mm high, with and including 400 x 550 x 590mm four drawer mobile pedestal as per detail JD B6	No	1		
20	32mm Thick x 900mm wide Max-on-top HPL worktop counter top supported with wall bearer and 710mm high x 80mm diameter steel legs, overall size 2770 x 700 x 760mm high, with and including 400 x 550 x 590mm four drawer mobile pedestal as per detail JD B6	No	1		
	Kitchen (room 6):				
21	32mm Thick x 750mm wide Rustenburg granite worktop counter top, floor mounted with 870mm high x 80mm diameter steel legs, unit 900mm high as per detail JD C8	m	1.60		
22	32mm Thick x 750mm wide Rustenburg granite worktop counter top, with and including cut-out for sink/basin (elsewhere measured), wall mounted with and including steel angle brackets and floor mounted with 870mm high x 80mm diameter steel legs, unit 900mm high as per detail JD C2	m	2.12		
23	Wall mounted open cupboard formed of 16mm Max-on-top faced boarding, overall 300mm wide x 648mm high, including all required bearers, etc. as per detail JD C2	m	1.65		
	Block E - Rehab:				
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 6
CARPENTRY & JOINERY

	Reception (room 3):				
24	Wall mounted white epoxy coated adjustable steel shelving brackets for timber shelves faced with Max-on-top HPL with and including 30 x 15mm epoxy coated steel wall bands at 500mm centres, 2190mm long, and including floor mounted bearer as per detail JD A1	m	3.30		
	Reception unit assembled of the following items (tenderer to allow for cutting and fitting):				
25	32mm Thick x 600mm wide Max-on-top HPL worktop counter top supported with wall bearer and 710mm high x 80mm diameter steel legs, overall size 2110 x 600 x 760mm high, with and including 400 x 550 x 590mm four drawer mobile pedestal as per detail JD B6	No	1		
26	32mm Thick x 844mm wide extreme, Max-on-top HPL worktop counter top supported with wall bearer and 710mm high x 80mm diameter steel legs, overall size 860 x 844 x 760mm high, width tapering down to approximately 450mm, as per detail JD B6	No	1		
27	32mm Thick x 440mm wide Max-on-top HPL worktop counter top supported with wall bearer and 710mm high x 80mm diameter steel legs, overall size 2090 x 440 x 760mm high, as per detail JD B6	No	1		
	Store (room 5):				
28	Wall mounted white epoxy coated adjustable steel shelving brackets for timber shelves, 300mm wide, faced with Max-on-top HPL with and including 30 x 15mm epoxy coated steel wall bands at 500mm centres, 2190mm long, and including floor mounted bearer as per detail JD A1	m	7.61		
29	Floor mounted cupboard formed of 16mm melamine faced boarding with 94 x 32mm hardwood floor bearers, unit 600mm wide and 2257mm high as per detail JD A5	m	3.10		
30	Floor mounted four tier shelving with 69 x 22mm hardwood support battens and consisting of 22mm thick laminated timber shelves all varnished, unit 600mm wide and 2102mm high as per detail JD A6	m	2.70		
	Social / Psych Office (room 6):				
31	Floor mounted cupboard formed of 16mm melamine faced boarding with 94 x 32mm hardwood floor bearers, unit 600mm wide and 2257mm high as per detail JD A5	m	1.44		
32	32mm Thick x 600mm wide Max-on-top HPL worktop counter top supported with wall bearer and 710mm high x 80mm diameter steel legs, overall size 1500 x 600 x 760mm high, with and including 400 x 550 x 590mm four drawer mobile pedestal as per detail JD B6	No	1		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 6
CARPENTRY & JOINERY

	ADL Kitchen (room 7):				
33	32mm Thick x 600mm wide Max-on-top HPL worktop counter top including cut out for sink (elsewhere measured) over floor mounted unit 900mm high including bearers, finished with 16mm Max-on-top HPL faced boarding as per detail JD C9	m	2.35		
34	32mm Thick x 600mm wide Rustenburg granite worktop counter top, floor mounted with 870mm high x 80mm diameter steel legs, unit 900mm high as per detail JD C8	m	3.26		
	Dietician Office (room 8):				
35	Floor mounted cupboard formed of 16mm melamine faced boarding with 94 x 32mm hardwood floor bearers, unit 600mm wide and 2257mm high as per detail JD A5	m	1.44		
36	32mm Thick x 600mm wide Max-on-top HPL worktop counter top supported with wall bearer and 710mm high x 80mm diameter steel legs, overall size 1500 x 600 x 760mm high, with and including 400 x 550 x 590mm four drawer mobile pedestal as per detail JD B6	No	1		
	Dietician Store (room 9):				
37	Wall mounted white epoxy coated adjustable steel shelving brackets for timber shelves, 500mm wide, faced with Max-on-top HPL with and including 30 x 15mm epoxy coated steel wall bands at 500mm centres, 2190mm long, and including floor mounted bearer as per detail JD A1	m	4.59		
	Physio Office (room 12):				
38	Floor mounted cupboard formed of 16mm melamine faced boarding with 94 x 32mm hardwood floor bearers, unit 600mm wide and 2257mm high as per detail JD A5	m	1.44		
39	32mm Thick x 600mm wide Max-on-top HPL worktop counter top supported with wall bearer and 710mm high x 80mm diameter steel legs, overall size 1500 x 600 x 760mm high, with and including 400 x 550 x 590mm four drawer mobile pedestal as per detail JD B6	No	1		
	OT Office (room 13):				
40	Floor mounted cupboard formed of 16mm melamine faced boarding with 94 x 32mm hardwood floor bearers, unit 600mm wide and 2257mm high as per detail JD A5	m	1.44		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 6
CARPENTRY & JOINERY

41	32mm Thick x 600mm wide Max-on-top HPL worktop counter top supported with wall bearer and 710mm high x 80mm diameter steel legs, overall size 1500 x 600 x 760mm high, with and including 400 x 550 x 590mm four drawer mobile pedestal as per detail JD B6	No	1		
	Store (room 14):				
42	Wall mounted white epoxy coated adjustable steel shelving brackets for timber shelves, 500mm wide, faced with Max-on-top HPL with and including 30 x 15mm epoxy coated steel wall bands at 500mm centres, 2190mm long, and including floor mounted bearer as per detail JD A1	m	2.74		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 6
CARPENTRY & JOINERY

Section No. 2

Bill No. 6

CARPENTRY & JOINERY

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	57		
	58		
	59		
	60		
	61		
	62		
	63		
	64		
	65		
Carried Forward to Summary of Section No. 2		R	

Section No. 2
BUILDING WORKS
Bill No. 6
CARPENTRY & JOINERY

Item No		Unit	Quantity	Rate	Amount
	SECTION No. 2: BUILDING WORKS				
	BILL No. 7: CEILINGS, PARTITIONS & ACCESS FLOORING				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	SUPPLEMENTARY PREAMBLES				
	Proprietary products in descriptions				
	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted				
	Descriptions				
	Items described as "nailed" shall be deemed to be fixed with hardened steel nails or pins or shot pinned to brickwork or concrete				
	Items described as "plugged" shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 600mm centres, and where described as "bolted" the bolts have been given elsewhere				
	NAILED UP CEILINGS				
	6mm Thick Nutec or other approved fibre cement ceiling boarding, laid in staggered pattern with and including 40 x 12mm wrot Meranti jointing strips fixed over joints, secured to and including 38 x 50mm sawn softwood brandering at 600mm centres at joints, against walls, etc. with drywall screws at maximum 150mm centres:				
1	Eaves soffits (generally 800mm wide)	m2	227		
	SUSPENDED CEILINGS				
	Carried to Collection			R	

	9,5mm Thick Gyproc RhinoBoard or other approved taper edged gypsum ceiling boarding, secured to and including Donnceil T37K grid, with screws to main tees at 1200mm centres and 35 x 32mm high cross tees at 600mm centres, with and including all necessary angles, cleats, hangers, grids, locking type end clips, etc, including skimming boarding with and including RhinoLite skimming plaster:				
2	Suspended ceiling system fixed not exceeding 1m below steel trusses, spaced at approximately 120omm centres	m2	215		
	9,5mm Thick faced gypsum ceiling boarding in panels size 600 x 1200mm, face-covered with white embossed vinyl, laid on and including Donnceil T37 grid, 35 x 37mm high slotted main tees at 1200mm centres and 35 x 32mm high cross tees at 600mm centres, with exposed face of tee white powder coated, including all necessary angles, cleats, hangers, grids, locking type end clips, etc.:				
3	Suspended ceiling system fixed not exceeding 1m below steel trusses at approximately 1200mm centres	m2	385		
	12,5mm Thick Gyproc Soundbloc or other approved acoustic ceiling tiles size 600 x 1200mm, laid on and including Donnceil T37 grid, 35 x 37mm high slotted main tees at 1200mm centres and 35 x 32mm high cross tees at 600mm centres, with exposed face of tee white powder coated, including all necessary angles, cleats, hangers, grids, locking type end clips, etc.:				
4	Suspended ceiling system fixed not exceeding 1m below timber trusses at approximately 1200mm centres	m2	6		
	Shadowline SM25 or other approved powder coated cornices fixed in accordance with the manufacturer's instructions:				
5	Cornice fixed securely along perimeter of suspended ceiling to wall	m	552		
	Gypsum cornices plugged to walls:				
6	75mm Coved cornice including sealing along both edges with silicone sealer to render airtight	m	34		
	BULKHEADS				
	Carried to Collection			R	

	9,5mm Thick Gyproc RhinoBoard or other approved taper edged gypsum ceiling boarding, secured to and including 38 x 50mm sawn softwood brandering at 400mm centres at joints, against walls, hangers, etc. including skimming boarding with and including RhinoLite skimming plaster:				
7	230mm wide x 340mm high	m	5		
8	750mm wide x 340mm high	m	8		
	INSULATION				
	Isotherm or other approved non-combustible lightweight insulation blanket:				
9	100mm Thick flexible polyester insulation blanket closely fitted between tie beams and laid loose on top of brandering.	m2	607		
	Carried to Collection			R	

Section No. 2

Bill No. 7

CEILINGS, PARTITIONS & ACCESS FLOORING

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	67		
	68		
	69		
Carried Forward to Summary of Section No. 2		R	

Item No		Unit	Quantity	Rate	Amount
	SECTION No. 2: BUILDING WORKS				
	BILL No. 8: FLOOR COVERINGS, PLASTIC LININGS, ETC.				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	SECTION No. 2: BUILDING WORKS				
	SUPPLEMENTARY PREAMBLES				
	Proprietary products in descriptions				
	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted				
	FLOOR COVERINGS, CARPETS, ETC.				
	2,5mm Thick Floorworx Surestep Safety or other approved fully flexible vinyl sheeting, including fixing with welded joints on self-levelling screed (elsewhere measured) with adhesive and installed in accordance with the manufacturer's instructions:				
1	On self-levelling screed (elsewhere measured)	m2	196		
2	Turn-up over cove former (elsewhere measured) and up against plastered wall not exceeding 300mm girth	m	253		
	2,5mm Thick Floorworx Marmoleum in colour (specified by Architect) or other approved fully flexible vinyl sheeting, including fixing with welded joints on self-levelling screed (elsewhere measured) with adhesive and installed in accordance with the manufacturer's instructions:				
3	On self-levelling screed (elsewhere measured)	m2	135		
4	Turn-up over cove former (elsewhere measured) and up against plastered wall not exceeding 300mm girth	m	175		
	Carried to Collection			R	

	3,2mm Thick ECOsurface rubber flooring made from recycled tires with EPDM multi-coloured flecks in colour (Asphalt Jungle 2513) or other approved fully flexible rubber sheeting, including fixing with welded joints on self-levelling screed (elsewhere measured) with adhesive and installed in accordance with the manufacturer's instructions:				
5	On self-levelling screed (elsewhere measured)	m2	145		
6	Turn-up over cove former (elsewhere measured) and up against plastered wall not exceeding 300mm girth	m	61		
	3,4mm Thick FORBO 19dB modulup in colour to architects specification, or other approved fully loose lay acoustic vinyl sheeting, including fixing with welded joints on self-levelling screed (elsewhere measured) with adhesive and installed in accordance with the manufacturer's instructions:				
7	On self-levelling screed (elsewhere measured)	m2	6		
8	Turn-up over cove former (elsewhere measured) and up against plastered wall not exceeding 300mm girth	m	10		
	ACCESSORIES TO COVED SKIRTINGS, ETC.				
	Polyflor or other approved accessories including securing in accordance with the manufacturer's instructions:				
9	CF20 Polycove cove former fixed horizontally at junction of floor and wall	m	499		
10	CS20 Polycap capping strip fixed horizontally at top of sheeting (elsewhere measured)	m	499		
11	CF20 Polycove cove former 150mm high fixed vertically to internal corner of wall	No	66		
12	EFA75 Corner cap 150mm high fixed vertically to external corner of wall	No	17		
	POLISH, SEALERS, ETC.				
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 8
FLOOR COVERINGS, PLASTIC LININGS, ETC.

	Dust mop or vacuum the floor to remove loose soil and dust, scrub the floor using a solution of FloorworX Maintain diluted 1:10 with clean water with a rotary machine fitted with a blue pad, remove the residue immediately after scrubbing using a wet/dry vacuum, rinse with clean water using a mop and allow the floor to dry. Dry buff the floor using a rotary or high speed machine fitted with a white pad, apply FloorworX Spray Buff in a fine stream or mist onto the floor in front of a rotary machine fitted with a red pad and work in until dry and achieving a smooth surface and constant level of gloss:				
13	On vinyl sheeting to floors	m2	472		
	Dust mop and clean to remove all dust, scrub the sheeting using a solution of FloorworX Maintain diluted 1:10 with clean water with a soft hand brush, remove the residue immediately after scrubbing using a wet/dry procedure, rinse with clean water using a soft cloth and allow the sheeting to dry. Spray with FloorworX Spray Buff in a fine stream or mist onto the sheeting and work in until dry to achieve a smooth surface and constant level of gloss:				
14	On vinyl sheeting to walls	m2	38		
	ARTIFICIAL GRASSING				
	Artificial grass is to be laid on and include suitable weedkiller, geotech fabric and a 50mm layer of 7mm diameter crusher dust to be included in the cost of installation.				
	A eight year guarantee on workmanship and material is required by the Principal Agent				
	Easygrass Type Play Elite or other approved artificial grass complete with silica sand treatment installed as per manufacturer's instructions:				
15	25mm Thick pile height artificial grass glued to concrete edging (elsewhere measured)	m2	150		
16	Extra over for 100 x 100mm Concrete edge to perimeter of grassing area for securing grassing edge including all necessary excavations, formwork, compaction, grading, carting away, etc.	m	70		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 8
FLOOR COVERINGS, PLASTIC LININGS, ETC.

Section No. 2

Bill No. 8

FLOOR COVERINGS, PLASTIC LININGS, ETC.

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	71		
	72		
	73		
Carried Forward to Summary of Section No. 2		R	

Section No. 2
BUILDING WORKS
Bill No. 8
FLOOR COVERINGS, PLASTIC LININGS, ETC.

Item No		Unit	Quantity	Rate	Amount

SECTION No. 2: BUILDING WORKS

BILL No. 9: IRONMONGERY (PROVISIONAL)

The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents

SUPPLEMENTARY PREAMBLES

Proprietary products in descriptions

Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted

Fixing of ironmongery

Descriptions of wall mounted and floor standing ironmongery items shall be deemed to include for fixing in position and all fixing accessories.

Descriptions of proprietary items shall be deemed to include fixing in position and all fixing accessories as specified by the manufacturer.

Finishes to ironmongery

Where applicable finishes to ironmongery are indicated by suffixes in accordance with the following list:

BS Satin bronze lacquered
CP Chromium plated
SC Satin chromium plated
SE Silver enamelled
GE Grey enamelled

AS Anodised silver
AB Anodised bronze
AG Anodised gold
ABL Anodised black
PB Polished brass
PL Polished and lacquered
PT Epoxy coated
SD Sanded Fixing

Carried to Collection R

Section No. 2
BUILDING WORKS
Bill No. 9
IRONMONGERY (PROVISIONAL)

	Descriptions of wall mounted and floor standing ironmongery items shall be deemed to include for fixing in position and all fixing accessories Descriptions of proprietary items shall be deemed to include fixing in position and all fixing accessories Unless otherwise described locks shall have two keys each				
	HINGES, BOLTS, ETC.				
	Dormakaba or other approved:				
1	DBB-SS-009 102 x 75 x 3mm two ball bearing butt hinge	No	119		
2	DSH-SS-010 100 x 76 x 2mm Sinkless ball bearing hinge	Pairs	4.5		
3	DFB-SC-180 153mm flush bolt with heel	No	14		
	LOCKS				
	Dormakaba or other approved:				
4	DO36S SS cylinder sashlock	No	7		
5	DO37D SS cylinder deadlock	No	22		
6	DO37D Black cylinder deadlock	No	5		
7	DSC204101 GMK 40,5mm five pin euro-profile single cylinder grand master keyed	No	22		
8	DDC206301 GMK 63mm five pin euro-profile double cylinder grand master keyed	No	8		
9	DKC206301 GMK 63mm five pin euro-profile double cylinder grand master keyed	No	3		
10	DO38R NP rebate conversion kit	No	5		
11	EMC600ALH single electromagnetic lock with lock status sensor and LED indicator, including L + Z brackets	Sets	2		
	HANDLES				
	Dormakaba or other approved:				
12	DPH-301-B 325 x 25mm Straight tubular pull handle	No	5		
	Carried to Collection			R	

13	DHP-430-BL-SF 150 x 300mm plate including pull handle, complete with cut out and screws	No	9		
14	DHP-430-CR-SF 150 x 300mm plate including pull handle, complete with cut out and screws	No	5		
15	TH120 NS lever handle on narrow stile rose with narrow stile cylinder escutcheon	Pairs	2		
16	TH120 SS Lever handle on rose with cylinder escutcheon	Pairs	29		
	POLISHED STAINLESS STEEL PUSH AND KICK PLATES				
	Dormakaba or other approved:				
17	DPP-430-BL-SF 150 x 300mm push plate with and including countersunk holes for screws (screws included)	No	9		
18	DPP-430-CL-SF 150 x 300mm push plate with and including countersunk holes for screws (screws included)	No	5		
19	DKP-430-SF 900 x 807mm kick plate with and including countersunk holes for screws (screws included)	No	14		
	DOOR CLOSER ASSEMBLIES				
	Dormakaba or other approved:				
20	TS73V HO-SL EN 2-4 Hold open door closer fixed to timber, steel or aluminium door lining/frame with pull side fixing	Sets	10		
21	TS73V SL EN 2-4 Non hold open door closer fixed to timber, steel or aluminium door lining/frame with pull side fixing	Sets	24		
	DOOR STOPS, CABIN HOOKS, ETC.				
	Dormakaba or other approved:				
22	DDS-SS-017 floor mounted door stop	No	39		
23	DHC-SS-030A Hat and coat hook	No	8		
24	DHC-SS-031B stainless steel hat and coat hook with rubber buffer	No	4		
25	DDH-SS-020 wall buffer	No	3		
26	DPS-SS-032 stainless steel dust proof strike mounted to wall	No	7		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 9
IRONMONGERY (PROVISIONAL)

	Halcast or other approved:				
27	166 CH SC 200mm brass cabin hook and eye, with and including 75 x 75 x 75mm thick chamfered wrot Meranti block twice bolted to wall with anchor bolts	No	3		
	LETTERS, NAMEPLATES, ETC.				
	Contractor to provide samples of nameplates for approval of the Architect				
	Dormakaba or other approved:				
28	DSS-130 M Male sign	No	1		
29	DSS-131 F Female sign	No	1		
30	DSS-132 MF Male/female sign	No	1		
31	DSS-133 P Disabled persons sign	No	1		
32	DSS-135 TC Tea cup sign	No	1		
33	DSS-145 FHR Fire hose reel sign	No	2		
34	DSS-146 FE Fire extinguisher sign	No	2		
	PINNING BOARDS, WRITING BOARDS, PROJECTION SCREENS, ETC. (PROVISIONAL)				
	Vitrex or other approved:				
35	Pinning board size 1200 x 900mm high	No	2		
36	White board size 2400 x 1200mm high	No	2		
	BATHROOM FITTINGS, ETC.				
	Franke or other approved:				
37	Stainless steel (Code BHM9P) single towel rail unit, with and including end brackets plugged to wall	No	2		
	Kimberley Clarke or other approved:				
38	Toilet tissue dispenser MR2 S/S T/T Code SA426130	No	4		
39	Stainless steel hand towel dispenser Reflex MK2 Code SA426125	No	9		
	Carried to Collection			R	

40	Stainless steel wall bin Disposer Plus Code SA426135	No	9		
41	Foam soap dispenser Code SA427716	No	9		
	Vaal or other approved:				
42	Soap dish Code 71511084 semi recessed single holder	No	2		
	Shower rail/curtain assemblies:				
43	32mm Diameter chromium plated rail 1500mm long, with two ends fixed to and including chromium plated end brackets, plugged and screwed to wall, fitted with and including waterproof flexible PVC shower curtain size 1800 x 2000mm high with adjustable PVC stays and sliders	No	2		
	SUNDRIES				
	Nelxulas or other approved:				
44	50mm Long brushed stainless steel super heavy duty short bath single towel hook fixed to wall	No	4		
	Defy or other approved appliance:				
45	Bar fridge 120L white	No	1		
46	Fridge 247L white	No	2		
	Carried to Collection			R	

Section No. 2

Bill No. 9

IRONMONGERY (PROVISIONAL)

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	75		
	76		
	77		
	78		
	79		
Carried Forward to Summary of Section No. 2		R	

Section No. 2
BUILDING WORKS
Bill No. 9
IRONMONGERY (PROVISIONAL)

Item No		Quantity	Rate	Amount

SECTION No. 2: BUILDING WORKS

BILL No. 10: STRUCTURAL STEELWORK (PROVISIONAL)

The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents

SUPPLEMENTARY PREAMBLES

General

The contractor shall include for all required OHS items as per the included OHS plan including any scaffolding that may be required when pricing this bill section.

Descriptions

Descriptions of bolts to be Grade 8.8 and shall be deemed to include nuts and washers unless otherwise stated

Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete

Descriptions of L-shaped and U-shaped anchor bolts shall be deemed to include bending, threading, nuts and washers and embedding in concrete. Where anchor bolts are described as embedded in sides or soffits of concrete it shall be deemed to include holes through formwork.

Description of welds to be 6mm continuous fillet welds unless otherwise stated

Hot dip galvanising

Where hot dip galvanising is specified, it should be executed in accordance with SANS 121 specification for coastal conditions, unless otherwise described

LIGHT GAUGE STEEL ROOF TRUSS SYSTEM

Carried to Collection R

Prefabricated roof trusses

Prefabricated steel roof trusses shall be constructed of light gauge steel by a firm of specialist designer manufacturer's as approved by the engineer

Prices must include for all cross and wind bracing according to the manufacturer's instruction

Prices must include for the design, plans and approval of all steel trusses including a COC and no further claims shall be considered

Trusses shall be assembled in truss fabricating jigs with the truss having the proper camber, all tightly clamped together with joints secured using approved connector plates.

The connector plates shall be of such size as will ensure that the joints so made will adequately withstand the forces exerted on the joints

Approval of pre-fabricated roofing systems, whether measured as an alternative or not, shall be subject to the following requirements:

(a) The drawings shall be signed by a Registered Professional Engineer whose name appears on the Departmental panel for structural work

(b) In the case of systems buildings, approval shall be given with submission of the contract drawings on acceptance of the tender

The following minimum information shall be shown on the drawings:

(a) Details of the roof system with the position of the rafters and purlins indicated thereon as well as typical elevations

(b) Bracing

(c) Sizes and profile of the steel components

(d) Truss sizes, e.g. height of ridge or angle of pitch

(e) Plate sizes for every construction point (Code numbers only are deemed insufficient)

(f) Separate connection details for hip, valley and jack rafters

(g) Maximum spacing for purlins and brandering to ceilings shall be according to specifications

Carried to Collection R

	(h) The type of roof covering as well as the design load. Over and above the supervision undertaken by the Representative/Agent, the Truss Fabricator or his Design Engineer shall inspect the completed roof structure and issue a certificate of confirmation to the Department that: "The roof structure(s) has (have) been erected in accordance with the Design Engineer's drawings, as accepted by the Department"				
	All prices shall be deemed to include the cost of the Registered Professional Engineer and the issuing of a certificate on completion, certifying the workmanship, erection and materials meeting the stated requirements.				
	Fixing				
	All fixing of steel roof trusses, purlins, etc. shall be done in accordance with the manufacturers specifications				
	Where items are described as "bolted" the bolts have been measured elsewhere				
	GALVANISED PREFABRICATED STEEL ROOF TRUSSES, ETC.				
	All roof truss dimensions are measured to the external perimeter of the structures/buildings.				
	Design and supply of Mitek Ultra Span or other approved light gauge steel roof truss system with and including all fixing in position, bracing and purlins/battens at 320mm centres to receive concrete roof tile (elsewhere measured):				
1	Double pitched trusses for regular shaped building, size overall 5,65 x 10,96m on plan at 30 degree pitch, with gable ends and 650mm eaves overhang (Block A - 75,40m2)	No	1		
2	Double pitched trusses for regular shaped building, size overall 7,60 x 23,95m on plan at 30 degree pitch, with hipped end on one end and connection to existing roof structure on other end, all with 650mm eaves overhang (Block B - 181,30m2)	No	1		
3	Double pitched trusses for irregular shaped building, size overall 12,62 x 7,57m on plan at 30 degree pitch, comprising one leg size 12,62 x 3,20m with hipped ends and other leg size 4,40m x 3,30 with hipped ends, all with 1000mm eaves overhang (Block D - 54,85m2)	No	1		
	Carried to Collection			R	

4	Double pitched trusses for irregular shaped building, size overall 18,33 x 17,31m on plan at 30 degree pitch, comprising one leg size 18,33 x 9,68m with hipped ends and other leg size 7,61m x 9,68 with hipped ends, all with 650mm eaves overhang (Block E - 250,00m2)	No	1		
	HOT DIP GALVANISED STEEL ROOF MEMBERS, ETC.				
	All steel to be Grade S355JR				
	Structural roof members with gussets, connection plates, including all welding, etc.:				
5	50 x 50 x 3 Equal angle steel	t	0.02		
6	203 x 133 x 25kg/m Steel parallel flange I section beam/column	t	1.32		
7	230 x 90 x 32,2kg/m Steel parallel flange channel section beam	t	0.38		
8	100 x 100 x 10mm Thick equal angle cleat 100mm long, four times holed for bolt (elsewhere measured)	No	18		
	Columns and baseplates.:				
9	120 x 120 x 10mm Thick plate four times holed for bolts (elsewhere measured) and fillet welded to rafter	No	4		
10	210 x 2135 x 10mm Thick plate four times holed for bolts (elsewhere measured) and welded to column	No	4		
11	400 x 400 x 16mm Thick baseplate four times holed for bolts (elsewhere measured) and welded to column	No	4		
	Purlins, girts, bracing, etc.:				
12	175 x 75 x 20 x 4,5mm Cold formed lipped channel section including all cleats, etc.	t	0.86		
13	200 x 75 x 20 x 4,5mm Cold formed lipped channel section including all cleats, etc.	t	0.11		
	Hot dipped galvanised bolts to structural steel elements, etc.:				
14	M12 Grade 8.8 bolt 150mm long, screwed one end with lock nut and flat washer	No	128		
15	M20 Grade 8.8 bolt 665mm long, screwed one end with lock nut and flat washer, shim plate, etc. and other end including 70 x 70 x 12mm thick steel plate welded to bolt and required 16mm diameter rod straps welded to bolt	No	16		
	Carried to Collection			R	

	CHEMICAL ANCHOR				
	Anchors to structural steel elements, etc.:				
16	HIlti HIT-HY170 or other approved adhesive anchor in brickwork	No	4		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 10
STRUCTURAL STEELWORK (PROVISIONAL)

Section No. 2

Bill No. 10

STRUCTURAL STEELWORK (PROVISIONAL)

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	81		
	82		
	83		
	84		
	85		
Carried Forward to Summary of Section No. 2		R	

Item No		Unit	Quantity	Rate	Amount

SECTION No. 2: BUILDING WORKS

BILL No. 11: METALWORK

The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents

SUPPLEMENTARY PREAMBLES

Proprietary products in descriptions

Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted

General

Descriptions of bolts shall be deemed to include nuts and washers.

Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete.

Metalwork described as "holed for bolt(s)" shall be deemed to exclude the bolts unless otherwise described.

Each window shall be tested for water tightness with water sprayed on by means of a 20mm hosepipe using adequate pressure. If in the opinion of the principal agent, the pressure proves to be inadequate, then the pressure in the hosepipe shall be boosted by means of compressed air or other approved means.

Aluminium doors and windows shall comply with AAAMSA design and performance criteria for built up areas.

Glazing shall comply with SAGGA regulations. Glass shall be type 6.38mm laminated performance glass as shown on the window schedules / drawings appended to these bills of quantities.

Glass thickness shall comply with SAGGA regulations irrespective of thicknesses shown on the schedules/drawings.

Doors and windows shall be supplied with protective tape and plastic and shall be removed only once surrounding trades have been completed.

Carried to Collection R

	The following certificates shall be provided prior to commencement of site work: 1.) A copy of the relevant AAAMSA Performance Test Certificate from the manufacturer/contractor supplying the architectural aluminium product 2.) A Certificate of Conformance confirming that anodising or powder coating has been processed in accordance with SANS 999 and SANS 1796 3.) A powder guarantee of not less than 15 years issued by the powder manufacturer. The specific conditions contained in this guarantee shall form part of the powder coating process 4.) A Certificate of Conformance confirming that glazing has been installed in accordance with SANS 0137, ensuring that safety glazing materials have been installed in the mandatory areas and that each individual pane of safety glazing materials has been permanently marked 5.) A warranty from the manufacturer of the laminated safety glass and/or hermetically sealed glazing units guaranteeing the products against delamination and colour degradation for a period of not less than five years including Glazing COC All windows to be approved by the Architect prior to installation. **Hot dip galvanising** Where hot dip galvanising is specified, it should be executed in accordance with SANS 121:2011 (ISO 1461:2009), unless otherwise described **STAINLESS STEEL HANDRAILS, TOP RAILS, ETC. (PROVISIONAL)** **EZRails or other approved stainless steel (Grade 316) top rail, including all scribing, welding, setting up in position, adjusting, etc. in matt finish.:**				
1	50mm Diameter rail	m	137		
2	Extra over 50mm diameter rail for bend	No	30		
3	Extra over 50mm diameter rail for rounded closed end	No	55		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 11
METALWORK

4	3mm Thick standard bracket bolted to 50mm diameter rail and coverplate (both elsewhere measured)	No	113		
5	3mm Thick standard coverplate 50mm diameter welded to bracket (elsewhere measured), three times holed for and bolted to wall (bolts elsewhere measured)	No	113		
6	10mm Diameter expansion bolt 70mm long	No	339		
	CORNER PROTECTORS TO WALLS				
	50 x 50 x 2mm Thick aluminium angle corner protector, natural anodized finish, glued to wall with contact adhesive, countersunk holed along two edges for and screwed to wall with and including countersunk headed stainless steel screws at 150mm centres:				
7	100mm Girth protection plate 2100mm long, once bent and secured to wall	No	20		
	ALUMINIUM WINDOWS				
	Ironmongery to include standard factory fittings including friction stays, project out sash hardware, glazing gaskets and seals all to be approved by the Architect.				
	Natural anodised aluminium casement windows extruded from 6063T6 aluminium alloy with minimum wall thickness of 1,6mm thick glazed with 6,38mm thick translucent laminated safety glass plugged to brickwork or concrete, including clear silicone sealant applied around:				
8	Window assembly size 1200 x 1200mm high divided by one vertical mullion, first section consisting of two top hung to open out sections size, 500 x 526mm high, second section consisting of fixed pane size, 925 x 1101mm high as WT08 in window schedule	No	1		
9	Window assembly size 1200 x 1200mm high divided by one horizontal transome, top section consisting of top hung to open out section size, 1140 x 547mm high, bottom section consisting of fixed pane size, 1140 x 547mm high as WT13 in window schedule	No	4		
10	Window assembly size 1480 x 1200mm high divided by one vertical mullion and one horizontal transome, top two sections top hung to open out size, 715 x 570mm high, bottom two sections in fixed panes size, 695 x 555mm high as WT12 in window schedule	No	12		
	Carried to Collection			R	

11	Window assembly size 1200 x 1800mm high divided by one vertical mullion, first section consisting of two top hung to open out sections size, 500 x 500mm high, bottom section consisting of fixed pane size 500 x 600mm high, second section consisting of fixed pane size 550 x 1700mm high as WT03a in window schedule	No	1		
12	Window assembly size 1800 x 1800mm high divided by one vertical mullion, first section consisting of two top hung to open out sections size, 900 x 595mm high, separated by horizontal transome from fixed pane size 900 x 610mm high, second section consisting of fixed pane size 900 x 1800mm high as WT03b in window schedule	No	1		
13	Window assembly size 2120 x 1200mm high divided by two vertical mullions and one horizontal transome, outer two sections identical, each consisting of one top hung to open out section size, 523 x 511mm high, bottom consisting of one side hung to open out section size, 523 x 630mm high, middle section consisting of top fixed pane section size, 955 x 511mm high, bottom section consisting of fixed pane section size, 955 x 599mm high as WT14 in window schedule	No	1		
	Natural anodised aluminium casement windows extruded from 6063T6 aluminium alloy with minimum wall thickness of 1,6mm thick glazed with 6,38mm thick clear laminated safety glass plugged to brickwork or concrete, including clear silicone sealant applied around:				
14	Window assembly size 900 x 1100mm high consisting of fixed pane section as WT15 in window schedule	No	2		
15	Window assembly size 1200 x 1100mm high consisting of fixed pane section as WT15a in window schedule	No	2		
	Natural anodised aluminium casement windows extruded from 6063T6 aluminium alloy with minimum wall thickness of 1,6mm thick glazed with 6,38mm thick opaque laminated safety glass plugged to brickwork or concrete, including clear silicone sealant applied around:				
16	Window assembly size 600 x 1200mm high divided by one horizontal transome, top consisting of top hung to open out section size, 600 x 600mm high, bottom consisting of fixed glazing size 600 x 600mm high as WT04 in window schedule	No	1		
	ALUMINIUM SHOPFRONTS, DOORS, ETC.				
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 11
METALWORK

	Natural anodised aluminium shopfront or doors glazed with 6,38mm thick laminated safety glass plugged to brickwork or concrete, including clear silicone sealant applied around:				
17	Door assembly with single door and frame size 850 x 2051mm high, divided in two unequal glazed sections with one horizontal transome 220mm high, bottom glazed section size 680 x 540mm high with lower horizontal transome 150mm high and top glazed section size 680 x 1056mm high, overall size 940 x 2095mm high as DT07 in door schedule	No	2		
18	Door assembly with single door and sidelights each side, first sidelight section comprising of fixed top glazing size 240 x 1204mm high separated by 100mm horizontal transome, bottom section fixed aluminium sheet panel size 240 x 710mm high, second sidelight section comprising of fixed top glazing size 360 x 1204mm high separated by 100mm horizontal transome, bottom section fixed aluminium sheet panel size 360 x 710mm high, door comprising of fixed glazing size 730 x 1059mm high separated by 220mm horizontal transome, bottom fixed aluminium sheet panel size 730 x 540mm high, bottom with horizontal transome 150mm high, overall size 1500 x 2094mm high as per DT17 in door schedule	No	1		
19	Shopfront assembly with frame, size 4485 x 1195mm high, evenly divided with three vertical mullions, each section in fixed pane size 1120 x 1195mm high as per WT11d in window schedule	No	1		
20	Shopfront assembly with frame on three sides and one side frameless abutted, size 3275 x 1790mm high, evenly divided with one vertical mullion, both sections in fixed panes size 1640 x 1790mm high, as per WT11c in window schedule	No	1		
21	Shopfront assembly with frame on three sides and one side frameless abutted, size 2080 x 2910mm high, divided with one vertical mullion and one horizontal transome, all sections in fixed panes, first section size 1055 x 1455mm high, second section size, 1025 x 1455mm high, bottom sections identical to above as per WT11b in window schedule	No	1		
22	Shopfront assembly with frame on three sides and one side frameless abutted, size 3275 x 2910mm high, evenly divided with one vertical mullion and one horizontal transome, each section in fixed pane size 1640 x 1455mm high as per WT11a in window schedule	No	1		
	HOT DIP GALVANISED PRESSED STEEL DOOR LININGS				
	Carried to Collection			R	

	1,6mm Thick double rebated linings suitable for half brick walls, fitted with and including three Dorma DBB-SS-009 or other approved two ball bearing butt hinges welded to rebates in linings:				
23	Lining for door size 813 x 2032mm high	No	5		
	1,6mm Thick double rebated linings suitable for one brick walls, fitted with and including three Dorma DBB-SS-009 or other approved two ball bearing butt hinges welded to rebates in linings:				
24	Lining for door size 813 x 2032mm high	No	2		
	STAINLESS STEEL DOOR LININGS				
	1,6mm Thick double rebated linings suitable for half brick walls/partitions, fitted with and including three Dorma DBB-SS-009 or other approved two ball bearing butt hinges welded to rebates in linings:				
25	Lining for door size 813 x 2032mm high	No	5		
26	Lining for door size 1613 x 2032mm high	No	2		
	1,6mm Thick double rebated linings suitable for one brick walls, fitted with and including three Dorma DBB-SS-009 or other approved two ball bearing butt hinges welded to rebates in linings:				
27	Lining for door size 813 x 2032mm high	No	10		
28	Lining for door size 1613 x 2032mm high	No	5		
	HOT DIP GALVANISED STEEL				
	Framed and welded burglar bar assemblies, formed of 30 x 30mm square steel hollow section frame with two 30 x 30mm thick square steel hollow section intermediate horizontal frames spaced evenly, outer frame holed for and bolted to brickwork with and including suitable expansion bolts with eight bolts required in total, spaced equally around outer frame, vertical bars consisting of 10mm solid round steel bars spaced vertically at maximum 110mm centres, cut to correct lengths and welded to outer and intermediate horizontal frames, including setting up and securely fixing in position:				
29	Assembly for window size 1200 x 1200mm high	No	4		
30	Assembly for window size 1480 x 1200mm high	No	12		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 11
METALWORK

31	Assembly for window size 2120 x 1200mm high	No	1		
	Security gates complete, including building in as required:				
32	Framed and welded single gate assembly formed of 50 x 50 x 3mm thick hollow section outer frame, mitred and welded at corners, filled in with 10mm diameter rods fitted vertically at 110mm centres, all mitred and welded to outer frame, one horizontal member of 100 x 50 x 3mm thick steel rectangular hollow section as mid frame welded to outer frame, including 120mm diameter opening for and fitted with 12mm diameter sliding bolt with small handle in centre of one stile, opening formed of 10 x 10mm tubular framing shaped circularly and welded on, gate fitted with and including two heavy duty pin hinges with six 50 x 50mm steel brackets fixed to wall each once holed for and bolted to wall with 8mm diameter x 40mm long anchor bolts, including setting up inside opening, adjusting and securing, overall size 1037 x 2146mm high as GT02 in Gate schedule	No	1		
33	Framed and welded double gate assembly, both leafs 760mm wide, each with fixed adjacent panel 536mm wide, all sections formed of 50 x 50 x 3mm thick hollow section outer frame, mitred and welded at corners, filled in with 10mm diameter rods fitted vertically at 110mm centres, all mitred and welded to outer frame, one horizontal member of 100 x 50 x 3mm thick rectangular hollow section mid frame welded to outer frame, including 120mm diameter opening for and fitted with 12mm diameter sliding bolt with small handle in centre of one stile, opening formed of 10 x 10mm tubular framing shaped circularly and welded on, gate fitted with and including four heavy duty pin hinges (2 per leaf) with eight 50 x 50mm steel brackets fixed to wall each once holed for and bolted to wall with 8mm diameter x 40mm long anchor bolts, including setting up inside opening, adjusting and securing, overall size 2592 x 2220mm high as GT09 in Gate schedule	No	3		
	Framed and welded vent assemblies, formed of 30 x 30mm angle steel frame with expanded metal as Valmatex V.E.M 318F sheets or other approved welded to frame at perimeter, outer frame holed for and bolted to brickwork with and including suitable expansion bolts with six bolts required in total, spaced equally around outer frame, including setting up and securely fixing in position:				
34	Assembly for vent size 1450 x 250mm high	No	3		
	WAITING AREA SEATING:				
	Masakhane Seating (Pty) Ltd. or other approved public seating units:				
35	Two seater bench	No	1		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 11
METALWORK

36	Four seater bench	No	2		
	LOCKERS:				
	Solid steel wardrobe locker:				
37	300 x 450 x 1800mm High lockable single tier locker	No	10		
38	300 x 450 x 1800mm High lockable four tier locker	No	4		
	GUN SAFES:				
	Xpanda or other approved:				
39	No. 1 Hand held gun safe bolted including bolting to brick wall with suitable bolts	No	5		
	Mutual or other approved:				
40	Gun discharge unit safe filled with sand including bolting to brick wall with suitable bolts	No	1		
41	RHS 11 small gun safe with key locks including bolting to brick wall with suitable bolts	No	1		
	Carried to Collection			R	

Section No. 2

Bill No. 11

METALWORK

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	87		
	88		
	89		
	90		
	91		
	92		
	93		
	94		
Carried Forward to Summary of Section No. 2		R	

Section No. 2
BUILDING WORKS
Bill No. 11
METALWORK

Item No			Quantity	Rate	Amount
	SECTION No. 2: BUILDING WORKS				
	BILL No. 12: TILING				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	SUPPLEMENTARY PREAMBLES				
	Proprietary products in descriptions				
	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted				
	WALL TILING				
	600 x 300 x 7,5mm Thick matt white glazed ceramic tiles fixed to plaster with approved tile adhesive, 3mm wide continuous joints in both directions pointed with white/black epoxy grout:				
1	On walls including one key coat	m2	42		
2	On walls in isolated panels, splashbacks, etc. including one key coat	m2	13		
3	On walls in narrow widths including one key coat	m2	0.2		
	FLOOR TILING				
	Sundry cutting and fitting to all types of tiling:				
4	Fair cutting and fitting around pipe not exceeding 50mm diameter	No	29		
5	Fair cutting and fitting around pipe exceeding 50mm not exceeding 110mm diameter	No	13		
	SUNDRIES				
	Kirk or other approved:				
6	8mm High aluminium straight edge trim Code SQE080.N	m	22		
	Carried Forward to Summary of Section No. 2			R	

Item No		Unit	Quantity	Rate	Amount
	SECTION No. 2: BUILDING WORKS				
	BILL No. 13: GLAZING				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	SUPPLEMENTARY PREAMBLES				
	Proprietary products in descriptions				
	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted				
	SAFETY GLASS				
	All safety glass materials are to be permanently marked and all marks to be visible after glazing.				
	A Certificate of Compliance will be required certifying that the type/quality of the glass (including the glass pre-fitted to aluminium doors, windows or shopfronts - elsewhere) is in accordance with the specified requirements.				
	6,38mm Thick clear laminated safety glass fixed with timber glazing beads (elsewhere measured):				
1	Panes exceeding 0,1m2 and not exceeding 0,5m2	m2	1		
	6,38mm Thick obscure laminated safety glass fixed to existing aluminium panes (elsewhere prepared):				
2	Pane size 600 x 510mm high	No	1		
3	Pane size 1200 x 510mm high	No	2		
4	Pane size 600 x 1105mm high	No	1		
5	Pane size 1200 x 1105mm high	No	2		
	TOPS, SHELVES, DOORS, MIRRORS, ETC.				
	Carried to Collection			R	

	6mm Thick 'GG' quality polished silvered float glass copper backed mirror with polished edges, holed for and fixed with round rose chromium plated mirror screws with rubber buffers to plugs in brickwork or concrete, complete with silicone sealant around edges of mirror:				
6	Mirror size 400 x 600mm high with four screws	No	9		
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 13
GLAZING

Section No. 2

Bill No. 13

GLAZING

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	97 98		
Carried Forward to Summary of Section No. 2		R	

Item No		Unit	Quantity	Rate	Amount
	SECTION No. 2: BUILDING WORKS				
	BILL No. 14: PAINTWORK				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	SUPPLEMENTARY PREAMBLES				
	Proprietary products in descriptions				
	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted				
	Previously painted plastered surfaces				
	Surfaces shall be thoroughly washed down and allowed to dry completely before any paint is applied. Blistered or peeling paint shall be completely removed and cracks shall be opened, filled with a suitable filler and finished smooth				
	Previously painted metal surfaces				
	Surfaces shall be thoroughly rubbed and cleaned down. Blistered or peeling paint shall be completely removed down to bare metal				
	Previously painted wood surfaces				
	Surfaces shall be thoroughly cleaned down. Blistered or peeling paint or varnish shall be completely removed and cracks and crevices shall be primed, filled with suitable filler and finished smooth				
	PAINTWORK TO NEW AREAS				
	External elements to some areas may be painted in a predetermined colour scheme				
	ON EXTERNAL FLOATED PLASTER				
	Prepare and apply one Dulux Durafill filler coat and two coats exterior quality acrylic PVA paint on:				
1	Plastered walls	m2	17		
	Carried to Collection			R	

	ON INTERNAL FLOATED PLASTER OR SKIMMED SURFACES				
	Prepare and apply one coat plaster primer and two coats Duraplast plastic paint on:				
2	Plastered internal walls	m2	1 325		
3	Plastered ceilings	m2	31		
4	Skimmed bulkheads	m2	9		
	ON FIBRE CEMENT				
	Prepare and apply one coat undercoat and two coats exterior quality acrylic paint on:				
5	Eaves soffits and vertical sides	m2	227		
6	Duct closures	m2	7		
7	Cills, etc. not exceeding 300mm girth	m	42		
	Prepare and apply M22 Emerald Green coating on:				
8	Fascias and barge boards	m2	130		
	ON GALVANISED STEEL				
	Clean down galvanised surfaces thoroughly with galvanised iron cleaner, apply one coat calcium plumbate primer and two coats eggshell enamel paint on:				
9	Galvanised steel gate assembly (both sides measured - on flat)	m2	39		
10	Galvanised steel burglar bar assembly (both sides measured - on flat)	m2	59		
11	Galvanised steel vent assembly (both sides measured - on flat)	m2	2		
12	Galvanised steel door linings not exceeding 300mm	m	34		
	ON SHOP PRIMED STRUCTURAL STEEL, OTHER, ETC.				
	General				
	Carried to Collection			R	

Section No. 2
BUILDING WORKS
Bill No. 14
PAINTWORK

All steelwork surfaces that are to be painted, oiled or otherwise treated shall be dry, clean and prepared in accordance with the project specification. The Contractor shall apply such protective treatment to the steel as is required in terms of the project specification. All painted surfaces (and surfaces to be touched up) shall be thoroughly cleaned and dried before the application of any further coats. Shop contact surfaces need not be painted unless so required in terms of the drawings.

Surfaces not in contact, but inaccessible after assembly, shall receive the full specified protective treatment before assembly. The interior of hollow members sealed against the ingress of air or moisture shall not be given any protective treatment. Where welding is to be carried out subsequently, the surface of the steel shall not be painted, metal coated, or otherwise treated within a suitable distance of the weld if such paint, metal coating, or other protective treatment is likely to be harmful to welders or impair the quality of the welds. Welds and adjacent parent metal shall not be painted before the welds have been inspected for freedom from slag, de-slagged where necessary and have been approved.

Parts to be structurally encased in concrete shall be free from paint and oil and loose rust before encasement. Where friction-grip fasteners are used, protective treatment shall not be applied to the contact surfaces. After the fasteners have been finally tightened, inspected and approved, the exposed parts of the joints shall be given the full specified protection.

Shop Painting

1. Steelwork after fabrication shall be subjected to abrasive blast cleaning to a finish equal to or better than Sa 2½ of SIS 05 59 00
2. Within four hours after the completion of blast cleaning, two coats of a zinc chromate primer which complies with the requirements of SABS 679 Type 1, is to be applied to provide a total dry film thickness 35 to 40 microns. The primer shall be applied by means of a spray except for small areas which may be painted by a brush

Carried to Collection R

Section No. 2
BUILDING WORKS
Bill No. 14
PAINTWORK

Painting after Erection

1. After erection of steelwork all areas where the primer coat has been damaged, shall be touched up as specified (2)
    1. Provided that the primer is fully cured, as proved by a coin hardness test, general purpose structural steel paint to SABS 864 or a coat of a high gloss enamel to SABS 630 Type II, is to be applied to provide a dry film thickness of between 25 and 30 microns. The paint may be applied by means of a brush roller or airless or conventional spray
    2. Provided that the undercoat is touch dry within two hours, the finishing coat may be applied the following day. One coat of structural steel paint to SABS 864 Type Bor a high gloss enamel to SABS 630 Type II, shall be applied to provide a total dry film thickness of between 25 and 30 microns
2. The total dry film thickness of paint and primer coats shall be between 70 and 100 microns
3. The two coats of structural steel paint or high gloss enamel are to be of different colours. The colour of the final coat will be determined by the Architect

Repairs to Paint

1. All items of steelwork shall be examined on site, before and after erection, for damage to the paintwork and damaged areas shall be degreased, de-rusted and then repaired as follows:-
    1. Surrounding paint work that is still intact shall be feathered for a distance of about 20mm beyond each damaged area
    2. The whole of the area shall then be re-primed as specified previously as applicable
2. Where site cutting or welding (or both) are required, the area for a distance of about 50mm either side of the weld or cut shall be cleaned of all coatings, the cutting or welding (or both) carried out, the weld de-slagged, all flux and weld splatter removed, and the steelwork ground down to "white metal" and painted as specified previously as applicable

Carried to Collection R

Section No. 2
BUILDING WORKS
Bill No. 14
PAINTWORK

	Site Painting 1. No painting on site shall be carried out in inclement weather or when humidity or frost is liable to cause wet or damp conditions on the surfaces to be painted 2. Subject to the provisions of (3) and (4) below, only in special circumstances will the application of final coats of paint to the steelwork before erection followed by touching up after erection, be permitted by the Engineer 3. Surfaces that will be in contact after Site Assembly or Erection shall (when relevant), receive a final coat of the specified paint (in addition to shop priming) and shall be brought together while the paint is still wet 4. Surfaces that will be inaccessible after Site Assembly or Erection, shall receive the specified paint coats before assembly or erection as applicable Stop-Contact and fazing surface Stop-contact surfaces shall not be painted, nor shall protective treatment be applied to the fazing surfaces of friction-grip fasteners, except where shown on the drawings **Prepare and paint as described (colour to the approval of the Architects) on:**				
13	General surfaces of galvanised structural steel	m2	88		
	ON WOOD **Two coats waterproofing primer on:**				
14	Backs of frames, linings, etc. not exceeding 300mm wide.	m	20		
	Prepare and apply one coat pink wood primer and two coats eggshell enamel paint on:				
15	Timber doors (both sides measured)	m2	148		
16	Frames, cills, etc. not exceeding 300mm girth	m	20		
	PAINTWORK TO PREVIOUSLY PAINTED SURFACES **Wash down soiled surfaces with sugar soap, sand down and apply two coats Duraplast plastic paint on:**				
17	Internal walls	m2	219		
	Carried to Collection			R	
	Section No. 2 BUILDING WORKS Bill No. 14 PAINTWORK				

Section No. 2

Bill No. 14

PAINTWORK

COLLECTION

	Page No	Amount
Total Brought Forward from Page No.	100	
	101	
	102	
	103	
	104	
Carried Forward to Summary of Section No. 2		R

Section No. 2
BUILDING WORKS
Bill No. 14
PAINTWORK

SECTION SUMMARY - BUILDING WORKS

Carried to FINAL SUMMARY R

Section No. 2
BUILDING WORKS

Item No		Quantity	Rate	Amount

SECTION No. 3: PLUMBING & DRAINAGE (PROVISIONAL)

BILL No. 1: PLUMBING & DRAINAGE

The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents

SUPPLEMENTARY PREAMBLES

Proprietary products in descriptions

Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted

"Polycop" polypropylene pipes:

Polypropylene pipes 54 mm diameter and under shall be seamless copper coloured class 16 pipes jointed with "Fast-fuse" heat welded thermoplastic or brass compression fittings as designed for use with copper pipes as stated.

Pipes shall be firmly fixed to walls etc with coloured nylon snap-in pipe clips with provision for accommodating thermal movement and jointed and fixed strictly in accordance with the manufacturer's instructions.

All pipe diameters are nominal external.

Polypropylene pipes 63 mm diameter and over shall be class 12 pipes jointed with cast iron "Supraclamp" running joints.

Fusion welded bends, once or twice mitred as necessary, and tees shall be factory manufactured.

Fusion welded bends and tees shall include jointing to pipes with PVC rubber ring double Z joint couplers.

Branch tees shall include flanged and bolted joints to "Polycop" branch pipes in addition and for brass compression male iron to copper straight couplers.

Carried to Collection R

Reducers shall include jointing to pipes with PVC rubber ring double Z joint couplers and reducers shall be of sufficient overall length to accommodate same.

All pipes shall be jointed and fixed strictly in accordance with the manufacturer's instructions.

All pipe diameters are nominal external.

Concrete pipes:

Pipes shall be jointed with ogee joints with rubber collars or socket and spigot joints with rubber rings.

uPVC pipes and fittings:

Soil, waste and vent pipes and fittings shall be solvent weld jointed.

uPVC pressure pipes and fittings:

Pipes for water supply shall be of the class stated.

Pipes of 40mm diameter and smaller shall be plain ended with solvent welded uPVC loose sockets and fittings.

Pipes of 50mm diameter and greater shall have sockets and spigots with push in type integral rubber ring joints. Bends shall be uPVC and all other fittings shall be cast iron, all with similar push-in type joints.

Copper pipes:

Pipes shall be hard drawn and half-hard pipes of the class stated. Class 0 (thin walled hard drawn) pipes shall not be bent. Class 1 (thin walled half-hard), class 2 (half-hard) and class 3 (heavy walled half-hard) pipes shall only be bent with benders with inner and outer formers. Fittings to copper waste, vent and anti-syphon pipes, capillary solder fittings and compression fittings shall be "Cobra Watertech" type. Capillary solder fittings shall comply with ISO 2016. Only compression fittings shall be used in walls or in ground.

Fixing of pipes:

Unless specifically otherwise stated, descriptions of pipes shall be deemed to include fixing to walls etc, casting in, building in or suspending not exceeding 1m below suspension level.

Carried to Collection R

Reducing fittings:

Where fittings have reducing ends or branches they are described as "reducing". In the case of pipes with diameters not exceeding 60mm only the largest end or branch size is given. Should the contractor wish to use other fittings and bushes or reducers he may do so on the understanding that no claim in this regard will be entertained. In the case of pipes with diameters exceeding 60mm all sizes are given and no claim for extra bushes, reducers, etc will be entertained.

Wire gratings:

Descriptions of gutter outlets etc shall be deemed to include wire balloon gratings.

Excavations:

No claim for rock excavation will be entertained unless the contractor has timeously notified the quantity surveyor thereof prior to backfilling.

"Soft rock" and "hard rock" shall be as defined in "Earthworks".

Laying, backfilling, bedding, etc. of pipes:

Pipes shall be laid and bedded and trenches shall be carefully backfilled in accordance with manufacturers' instructions.

Where no manufacturers' instructions exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following:
SABS 1200 L : Medium-pressure pipelines
LD : Sewers
LE : Stormwater drainage
Pipe trenches etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200
DB : Earthworks (Pipe trenches)
Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200
LB : Bedding (Pipes).
Unless otherwise described bedding of rigid pipes shall be class B bedding.

Flush pans:

Flush pans shall have straight or side outlets and "P" or "S" traps as necessary.

Carried to Collection R

Section No. 3
PLUMBING & DRAINAGE (PROVISIONAL)
Bill No. 1
PLUMBING & DRAINAGE

Stainless steelbasins, sinks, wash troughs, urinals, etc:

Units shall have standard aprons on all exposed edges and tiling keys against walls where applicable.

Waste unions:

Descriptions of waste unions shall be deemed to include rubber or vulcanite plugs and chains fixed to fittings.

Chasing:

Rates for items are to include for chasing pipes into walls where applicable.

Disinfection of water pipework

All pipework is to be disinfected in accordance with SABS 1200L.

Excavation and filling

Excavation and backfilling must be done using hand held tools only.

Flexible connectors

Tenderers are to allow for the pricing of flexible connectors to all instances where deemed necessary. No extra will be entertained in this regard.

Laying, backfilling, bedding, etc. of pipes

Where no manufacturer's instructions exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following: SABS 1200 L : Medium pressure pipelines LD : Sewers LE : Stormwater drainage.

Internal water supplies

Prices for all piping laid in ground, inspection chambers, etc. shall include for excavations, keeping free of water, distributing surplus material on site (carting away has been separately measured) and backfilling in selected material (imported fill where required will be separately measured).

Holes, chases, etc. are deemed to be included in the descriptions of the pipework.

Carried to Collection R

Section No. 3
PLUMBING & DRAINAGE (PROVISIONAL)
Bill No. 1
PLUMBING & DRAINAGE

	Testing of installations/reticulation				
	The Contractor is to allow for testing of the internal water supply and fire supply installations per building as this will be completed as per the sectional completion requirements, as elsewhere described.				
	SANITARY PLUMBING				
	uPVC piping in accordance with SABS 967, including all straight couplings, cutting and waste, etc.:				
1	50mm Pipe	m	55		
2	110mm Pipe	m	27		
3	50mm Pipe chased into walls	m	12		
4	50mm Pipe laid in filling under floors	m	85		
5	110mm Pipe laid in filling under floors	m	15		
	Extra over uPVC piping for the following fittings:				
6	50mm Bend	No	43		
7	110mm Bend	No	6		
8	110mm Pan connector	No	4		
9	50mm Access bend	No	13		
10	110mm Access bend	No	5		
11	50mm Access junction	No	9		
12	110mm Access junction	No	4		
13	110mm Two-way vent valve	No	4		
	Testing sanitary plumbing installation:				
14	Complete installation		Item		
	WATER SUPPLY				
	Carried to Collection			R	

Section No. 3
PLUMBING & DRAINAGE (PROVISIONAL)
Bill No. 1
PLUMBING & DRAINAGE

	Polycop or other approved polypropylene piping, including chasing into brick walls if required:				
15	15mm Pipe	m	12		
16	15mm Pipe chased into walls	m	10		
17	22mm Pipe	m	10		
18	22mm Pipe chased into walls	m	11		
	Extra over Polycop pipes for brass compression fittings:				
19	15mm Pipe fittings	No	18		
20	22mm Pipe fittings	No	6		
	Class 2 copper piping in accordance with SABS 460, including straight couplings, cutting and waste, etc.:				
21	15mm Pipe	m	81		
22	15mm Pipe chased into walls	m	24		
23	22mm Pipe	m	10		
24	22mm Pipe chased into walls	m	20		
25	35mm Pipe	m	10		
	Extra over copper piping for the following Conex type fittings:				
26	15mm Fittings	No	140		
27	22mm Fittings	No	16		
28	28mm Fittings	No	4		
29	35mm Bend	No	4		
30	35mm Reducer	No	2		
31	35mm Reducing tee	No	2		
32	35mm Elbow	No	4		
33	35mm Tee	No	5		
	Carried to Collection			R	

	Paper lagging:				
34	Thermaflex protective tube around 15mm pipe and couplings	m	33		
35	Thermaflex protective tube around 22mm pipe and couplings	m	10		
36	Thermaflex protective tube around 35mm pipe and couplings	m	5		
	Sundries:				
37	22mm Brass Fullway gate valve with non-rising spindle to SABS 776	No	3		
	Testing water supply installation:				
38	Complete installation		Item		
	SANITARY FITTINGS				
	Supply and fit the following sanitary fittings and equipment together with loose ancillary fittings supplied therewith, including unloading, storing, unpacking, hoisting or lowering as required, fixing and building into position, cutting all mortices and chases as required, cutting, brackets, clamps, etc. and connecting up pipework and handing over in perfect working order at completion				
	All gaps between fittings and/or tiles and walls to be filled with white silicone				
	Franke or other approved - Grade 304 (18/10) polished stainless steel:				
39	Trendline Model 711 drop-in single bowl sink Code 1030040346 size 1000 x 460mm, fixed to cupboard (elsewhere measured) with securing clips and sealed with silicone adhesive along edges including 38mm waste fitting Code 1120166441 including plug complete with plumbing kit Spazi F/1 Code 1120166437	No	3		
40	Bedpan and bottle rack type BBR 4 size 660 x 350 x 505mm deep, including setting up and fixing to wall	No	1		
41	Wall mounted slophopper CH Code 351350, complete with 38mm flush pipe and FM1 flush valve with 100mm high integral splashbacks to sides and back, stainless steel grid and wall brackets supplied complete with tap bracket Code 354952 and removable grid Code 351356	No	1		
	Carried to Collection			R	

Section No. 3
PLUMBING & DRAINAGE (PROVISIONAL)
Bill No. 1
PLUMBING & DRAINAGE

	Duravit or other approved:				
42	D-Code 7054500002 wash hand basin size 450 x 340mm, with one taphole and overflow complete with installation kit Code 8448Z0 without pedestal	No	9		
43	D-Code 253509 vitreous china wall hung WC pan with white seat and cover Code 0067310000, complete connected to Geberit cistern (elsewhere measured) set at a height 400mm above finished floor level	No	4		
	Geberit or other approved concealed units, including cutting recess in brickwork as required and concealing after completion, etc.:				
44	Kombifix concealed element Code 110350005 complete with UP320 Sigma concealed cistern, with Actuator dual flush plate Code 115882SN1 stainless steel brushed finish installed complete to wall hung WC pan (elsewhere measured)	No	4		
	TAPS, VALVES, ETC.				
	Cobra Watertech or other approved:				
45	15mm Ledimo LO-291/044 CP sink mounted sink mixer with aerator swivel outlet	No	3		
46	15mm Ledimo LO-228-015 undertile stop tap with sliding flange	No	3		
47	15mm Code 232-10 angle regulating valve with 350mm long service connection flexihose and capnut	No	6		
48	15mm Type 1080 Ball-o-Flo ballcock	No	31		
49	22mm Type 1080 Ball-o-Flo ballcock	No	4		
50	35mm Type 1080 Ball-o-Flo ballcock	No	2		
51	22mm Heavy duty gate valve Code 1003/125-22	No	3		
	Schell or other approved:				
52	15 x 15mm Code 52055405 angle valve	No	18		
	Hansgrohe or other approved:				
53	Cosmos E2 Code 31733223 single basin mixer	No	9		
	Carried to Collection			R	

Section No. 3
PLUMBING & DRAINAGE (PROVISIONAL)
Bill No. 1
PLUMBING & DRAINAGE

54	Decor shower finishing set Code 31967003 with concealed body DN15 Code 13620180 and Schell vandal resistant shower head Code 018440699 complete	No	2		
55	Crometta 85 shower set mono with hose and shower bar 65cm Code 2772800 with hand shower Code 28561000 and adjustable slider and chrome plated wall supports complete	No	2		
	WASTE UNIONS, TRAPS, ETC.				
	Cobra Watertech or other approved:				
56	32mm Chromium plated 303-CP slotted basin waste union complete with 309-40 anti theft plug	No	9		
	Hansgrohe or other approved:				
57	40mm Chromium plated basin bottle trap Code 52053000	No	9		
	duBois or other approved:				
58	110mm Cast iron P trap	No	1		
	Rofo or other approved:				
59	RO 100 Grade 304 stainless steel shower trap with waterproof flange and single water seal with square waterproofing flange with holes, complete with 45 degree side outlet and 50,8mm diameter outlet outside pipe built into floor including connection to drainage pipe (elsewhere measured)	No	2		
60	RO 125V NW50 or other approved stainless steel grade 304 unique full flow square floor drain size 150 x 150mm, square flange top cover plate with holes with 50mm outlet and 125mm diameter trap box built into floor including connection to drainage pipe (elsewhere measured)	No	3		
	ZIP HYDROBOIL				
	Stiebel Eltron or other approved:				
61	7,5 Litre white polyester powder coated hydroboil mounted on wall	No	3		
	Carried to Collection			R	

Section No. 3

Bill No. 1

PLUMBING & DRAINAGE

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	107		
	108		
	109		
	110		
	111		
	112		
	113		
	114		
	115		
Carried to FINAL SUMMARY		R	

Section No. 3
PLUMBING & DRAINAGE (PROVISIONAL)
Bill No. 1
PLUMBING & DRAINAGE

Item No		Quantity	Rate	Amount

SECTION No. 4: EXTERNAL WORKS (PROVISIONAL)

BILL No. 1: EXTERNAL WORKS

The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 series documents

SUPPLEMENTARY PREAMBLES

Proprietary products in descriptions

Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted

View site

Before submitting his tender the Contractor shall visit the site and satisfy himself as to the nature and extent of the work to be done and the value of the materials contained in the buildings or portions of the buildings to be demolished. No claim for any variations of the contract sum in respect of the nature and extent of the work or of inferior or damaged materials will be entertained.

General

The Contractor shall carry out the whole of the works with as little mess and noise as possible and with a minimum of disturbance to adjoining premises and their tenants. He shall provide proper protection and provide, erect and remove when directed, any temporary tarpaulins that may be necessary during the progress of the works, all to the satisfaction of the Principal Agent

Water connection, standards, etc:

The Contractor is to take note that application must be made to the Local Municipality for an Erf Connection (110mm diameter connection) for a change to the existing water supply point

Carried to Collection R

The Contractor is to refer to the Nelson Mandela Bay Municipality's Standard Infrastructure Standard Details Manual (latest edition) for all plumbing and drainage related items

The Contractor must take special note of item PSL3 for off take connections from uPVC to HDPe pipes and item PSL6 and PSL7 for typical standpipe details

On installation of the system, the water supply mains are to be pressure tested under the Engineer's supervision in accordance with SABS 1200L

A water supply pressure test is to be executed at municipal supply point over a 7 day period and the results presented to the Engineer for approval

All pipe fittings and specials to be of specified approved material and to be 110mm and 75mm diameter uPVC to be Class 16 to SABS 966, 50mm diameter HDPe to be PN16 (PE 100) to SANS ISO 4427 or equivalent

Procedure of work

The Principal Agent reserves the right to direct the order in which the contract will be executed, should circumstances necessitate such action.

Maintenance period

Attention is drawn to the maintenance period of twelve (12) months from Practical Completion

Lost by theft, fire or otherwise

The risk of loss by theft, fire, storm, riot or otherwise of the buildings to be demolished and the materials therein shall rest entirely with the contractor immediately upon the handing over of the site. He shall take steps as he may deem fit for his own protection against such loss.

Carried to Collection R

Section No. 4
EXTERNAL WORKS (PROVISIONAL)
Bill No. 1
EXTERNAL WORKS

Water and other piping

Any water supply or other piping that may be met with and found necessary to disconnect or cut are to be effectually stopped off or grubbed up and removed and any new connections that may be necessary are to be made with proper fittings and to the satisfaction of the Representative/Agent to whom due notice is to be given of all alterations to existing services.

Prices for items of demolitions, are where applicable, to include for taking out and removing all sanitary fittings, plumbing and water supplies.

Electrical and other services

Special care is to be exercised not to unnecessarily interfere with any electric light, bell, power, telephone, or other wires and fittings that may be met with and due notice must be given to the Representative / Agent when any disconnections, removals, diversions, interruptions, etc. are necessary and the Contractor is to afford every facility to the workmen carrying out this work.

Noise prevention

The Contractor shall take special care to minimize noisy operations during business hours. Such measures will include, inter alia, the use of silent compressors and strict control of workmen.

Demolitions, removals and works on site

The whole of old materials from the demolitions and pulling down, unless otherwise specified are to become the property of the Contractor and shall be immediately cleared from the site.

Tenderers are advised to visit the site and to satisfy themselves, in conjunction with the drawings of the nature and extent of the work to be done.

The contractor is advised to check all dimensions and heights on site affecting the existing building against those indicated on plan as he will be responsible for all new work being of the correct sizes. Should any discrepancies be found he is to refer them to the Representative / Agent for correction before proceeding with the work.

Special care is to be exercised not to interfere with any electric light, power or telephone wires and due notice must be given to the Representative / Agent for any disconnection that is necessary, and the Contractor is to afford every facility to the Electrician when making new connections.

Any water supply or soil or waste pipes that may be met with and

Carried to Collection R

Section No. 4
EXTERNAL WORKS (PROVISIONAL)
Bill No. 1
EXTERNAL WORKS

found necessary to be disconnected or cut are to be traced back to the main connection, cut out and plugged with (3-1) cement mortar to a minimum depth of 300mm and any new connections that may be necessary are to be made with proper junction pieces, tees, etc. to the satisfaction of the Representative / Agent, to whom due notice must be given of all alterations to the existing services.

In taking down and removing existing work, the utmost care is to be observed to avoid any structural or other damage to the remaining portion of the building. The Contractor must protect all work not removed, such as walls, floors, doors, windows or other joinery or fittings, etc. from damage during the progress of the work and provide all necessary material for doing so.

The Contractor will be solely responsible for any damage to persons or property and for the safety of the portions of the existing buildings remaining throughout the whole of the Contract, and must make good at his own expense any damage that may occur.

Old materials for re-use are to be carefully taken out, stored and protected from damage and made good as required before being re-fixed into position.

Old materials described to be handed over are to be carefully removed and properly stored by the Contractor until handing over thereof. The remainder of the old materials and all rubbish are to be immediately carted away and the site left clean and unencumbered. None of the old materials from the demolitions are to be re-used for any new work unless otherwise described or directed.

Bricking up openings shall include all preparatory work, cutting toothings and bonding new brickwork to existing surface for raising upon, pinning up new brickwork to underside of existing.

Forming new openings shall include all labour and materials in forming opening, cutting toothings and bonding for and plumbing and flushing reveals, cutting for and forming precast concrete, or reinforced brick lintol over including necessary turning pieces, reinforcement, sills, etc.

Making good shall include all labour and material required to match existing work and is to include making good new work up to existing and labours to plaster, etc.

Shoring is not specifically mentioned in each item, however, prices are to include for all shoring, needling, strutting deadwork, etc. as may be required.

Carried to Collection R

Section No. 4
EXTERNAL WORKS (PROVISIONAL)
Bill No. 1
EXTERNAL WORKS

Hot dip galvanising:

Where hot dip galvanising is specified, it should be executed in accordance with SANS 121:2011 (ISO 1461:2009), unless otherwise described

Laying, backfilling, bedding, etc. of pipes:

Pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following:

SABS 1200L : Medium-pressure pipelines
LD : Sewers
LE : Stormwater drainage

Pipe trenches, etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200 DB : Earthworks (Pipe trenches)

Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200 LB : Bedding (Pipes)

Galvanised mild steel heavy duty Class 16 piping:

Galvanised mild steel piping and fittings to comply with SANS 62.2, SANS 1109.1 and galvanising with SANS 32

Excavations

No claim for rock excavation will be entertained unless the Contractor has timeously notified the Quantity Surveyor thereof prior to backfilling

Class of excavations will be in accordance with SABS 1200D Clause 3.1. For the purpose of this project "Soft Rock" will have the same meaning as Intermediate excavations as defined in SABS 1200D Clause 3.1

Boulder excavation definitions as stated in SABS 1200D will not apply

Classification of soils and gravel is in accordance with SABS 1200M: 1996 Table 3A & 3B or TRH14

Open face excavation is in accordance with SANS 2001: Part BE1

Concrete

All concrete work to be carried out in accordance with SABS 1200G

Carried to Collection R

Section No. 4
EXTERNAL WORKS (PROVISIONAL)
Bill No. 1
EXTERNAL WORKS

Cost of tests

The costs of making, storing and testing of concrete test cubes as required under clause 7 'Tests' of SABS 1200G, shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Principal Agent. The testing shall be undertaken by an independent firm or institution nominated by the Contractor to the approval of the Principal Agent (test cubes are measured separately)

Formwork

Description of formwork shall be deemed to include use and waste only (except where described as "left in" or "permanent"), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for reconditioning as necessary before re-use

The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself

Formwork to soffits of solid slabs, etc. shall be deemed to be slabs not exceeding 250mm thick unless otherwise described

Formwork to sides of bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the Engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in "Earthworks"

Degree of accuracy: Accuracy II as SABS 1200G

Reinforcement

Reinforcement to include 30MPa concrete cover blocks to ensure correct cover to reinforcing

Carried to Collection R

Reinforced concrete work

All aspects of structural concrete work (plain and reinforced) for civil engineering and building construction shall be in accordance with the requirements of SANS 2001: Part CC1 and SABS 0155 (Accuracy in Building). Any discrepancies are to be referred to the Engineer

1.1 Concrete mixes: All concrete mixing shall conform to SANS 2001: Part CC1. Specialised concrete applications will be referred to the Engineer. All aggregates used are to be approved by the Engineer. The water is to be clean as for human consumption

1.2 Concreting: Concreting shall conform to SANS 2001: Part CC1. All dirt and trash shall be removed from the formwork before concreting. Concrete shall be thoroughly consolidated by means of tamping of vibration

1.3 Maintaining reinforcement in position: The Contractor shall ensure that the correct concrete cover is maintained during the casting of concrete. In order to do this the Contractor shall provide suitable concrete or plastic cover blocks. All reinforcing is to be inspected and approved by the Engineer prior to casting of concrete. The Engineer shall be given 24 hours notice prior to any inspection required

1.4 Cure: All new concrete shall be thoroughly cured by means of a resin-based curing compound or as approved by the Engineer

Concrete paving blocks

Pavers manufactured in accordance with SANS 1058: 2012, laid in alternative stretcher bond patter in accordance with SANS 1200 MJ and CMA concrete Block Paving Manuals. Pavers to be laid to falls in compliance with SABS & as per Civil Engineer's specifications. Pavers to be laid on 25mm well-compacted sand bed on subgrade conforming to SANS 1200 D Degree of Accuracy I. Sand bed to be treated with ant & weed killer prior to laying pavers. Paving joints to be filled with fine clean jointing sand swept into joints & vibrated to a smooth & evenly uniform paving surface. Paving to be inspected for settlement and re-sanded after three months.

Roadworks

The Contractor shall be responsible for the safe and proper accommodation of traffic, both vehicular and pedestrian, for the duration of the Works, all in accordance with the provisions of SARTSM, Volume 2 necessary flagmen, equipment, signs, cones, etc.

Carried to Collection R

Section No. 4
EXTERNAL WORKS (PROVISIONAL)
Bill No. 1
EXTERNAL WORKS

	Applying bituminous binders and herbicides for sealing cracks. The tendered rates shall include full compensation for cleaning the cracks with compressed air, providing, mixing, heating (where required) and applying all the material as specified by the manufacturer, and for all the equipment, Labour, supervision incidentals for completing the work. No additional payment will be made for multiple applications of material.				
	TEMPORARY BARRIERS, SCREENS, ETC.				
	Temporary hoarding including dismantling all hoarding, filling all post holes and compacting and levelling to adjacent ground levels, when phased work is completed:				
1	Hoarding formed of 1,8m high galvanised steel weldmesh type fencing with 50 x 100mm apertures, secured to and including 60mm diameter treated gumpole fencing posts 2400mm long at 2m centres, gumpoles securely bedded 600mm deep in ground, medium grade shade cloth securely fastened to and including four rows of 4mm diameter straining wires, fastened to fencing and posts with 2mm diameter galvanised binding wire at 400mm centres, including all excavations, etc.	m	504		
2	Pedestrian gate size 1000 x 1800mm high complete with all necessary posts, hinges, locking mechanism, etc.	No	3		
3	Vehicular double gate size 4000 x 1800mm high complete with all necessary posts, hinges, locking mechanism, etc.	No	3		
	CLEANING OF EXISTING CONCRETE WALKWAYS/ROADS				
	Where descriptions refer to "..... clean of existing concrete walkways/roads/walls ....", Tenderers shall allow for the cleaning off of all fungal matter by whatever means and water pressure cleaning the areas				
4	Clean existing face brick boundary wall by pressure cleaning to remove all algae, discolourations, dirt, etc.	m2	115		
5	Clean existing concrete walkways/roads by pressure cleaning to remove all algae, discolourations, dirt, etc.	m2	420		
	REMOVAL OF TREES, ETC.				
	Cut down and remove, grub up roots and fill in holes:				
6	Digging up and removing all debris, vegetation, hedges, shrubs and trees not exceeding 200mm girth and carting off site to a location to be identified by the contractor	m2	2 057		
	Carried to Collection			R	

7	Tree exceeding 1500mm and not exceeding 2000mm girth	No	13		
8	Ditto exceeding 2000mm and not exceeding 2500mm girth	No	1		
9	Ditto exceeding 4000mm and not exceeding 4500mm girth	No	4		
	RELOCATION OF CONTAINERS ON EXISTING SITE, ETC.				
	Prefabricated Units/Steel Containers:				
10	Carefully dismantle and take down existing wendy house size 2,00 x 1,00 x 1,8m high to a location on site to be indicated by the Architect	No	1		
11	Carefully dismantle and take down existing prefabricated container size 6,00 x 3,00 x 2,2m high to a location on site to be indicated by the Architect	No	1		
12	Carefully dismantle and take down existing steel container size 2,30 x 2,80 x 2,2m high to a location on site to be indicated by the Architect	No	1		
13	Carefully dismantle and take down existing steel container size 11,00 x 2,50 x 2,2m high to a location on site to be indicated by the Architect including connection to sewer, water and electrical services (connection point for services - elsewhere measured)	No	4		
14	Carefully dismantle and take down existing steel container size 12,00 x 3,00 x 2,2m high with steel canopy to on side for full length of structure x 4,00m wide to a location on site to be indicated by the Architect including connection to sewer, water and electrical services (connection point for services - elsewhere measured)	No	1		
	25MPa/19mm Reinforced concrete:				
15	Surface beds to falls and cross falls	m3	17		
	Smooth formwork to sides:				
16	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	87		
	Finishing top surfaces of concrete smooth with a wood float:				
17	Surface beds, slabs, etc. to falls and currents	m2	170		
	Fabric reinforcement:				
18	Type 311 fabric reinforcement in concrete surface beds, ramps, etc.	m2	170		
	Carried to Collection			R	

	Test blocks:				
19	Making and testing 150 x 150 x 150mm concrete test cube (Provisional) (Only test cubes that have passed will be reimbursed)	No	9		
	Chlordane or other approved soil insecticide (Compliance Certificate with 10 year guarantee to be provided), laid in accordance with the manufacturer's instructions:				
20	Under paving, etc.	m2	100		
	Bosun or other approved bevel bond paver:				
	Paving is to be laid to herringbone pattern on 20mm (thickness after final compaction) clean river sand				
	Clean sand is to be swept into joints between road stones after laying and forming to correct cambers, etc.				
	Paving of 200 x 100 x 50mm thick precast concrete paving blocks with butt joints, laid on and including 20mm thick river sand bed with sand swept into joints (preparation of ground or filling elsewhere measured):				
21	Paving to external areas, etc. to falls and cross falls	m2	100		
22	Extra over for brick-on-edge paver laid in straight bond border	m	20		
	RAMPS				
	Earth filling supplied by the Contractor under ramps, etc.:				
23	Over site of G7 material compacted to a minimum of 95% Mod AASHTO dry density	m3	3		
	Reinforced concrete (30MPa/19mm):				
24	In ramps	m3	1		
	Rough formwork to:				
25	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	24		
	Test blocks:				
26	Making and testing 150 x 150 x 150mm concrete test cube (Only test cubes that have passed will be reimbursed)	No	6		
	Carried to Collection			R	

	Fabric type reinforcement:				
27	Type 311 fabric reinforcement in ramps, etc.	m2	9		
	Expansion joints:				
28	10mm Thick bitumen impregnated softboard in expansion joint material not exceeding 300mm wide	m	18		
	Sealing of expansion joints:				
29	Raking out 10mm thick expansion joint material for a depth of 10mm and seal with hot bitumen sealant	m	18		
	Untinted granolithic:				
30	25mm Thick to falls and cross falls on concrete	m2	9		
31	Set of 100mm wide non-slip reedings 1500mm long	No	12		
	BALUSTRADING TO ENTRANCE AREA				
	Mentis GMS or other approved inter-link handrail system with hot dip galvanised steel framed and ball type welded balustrading sections consisting of 34mm diameter, 2,5mm thick top and bottom rails (horizontal and/or raking) and vertical posts, 43mm diameter vertical stanchions spaced at 1500mm centres horizontally with ends fitted with Type MT90 joints to horizontal or raking rails, ends, etc., including all assembly, irregular joints, setting up and adjusting and securely bolting posts to concrete and/or brickwork, joining panels together, all as described:				
32	34mm Diameter round bar section horizontal or raking top rail and middle	m	11		
33	Ditto in 43mm vertical post	m	8		
34	150 x 60mm Rectangular baseplate fitted to bottom end of vertical post, four times holed for and bolted to concrete or brickwork with and including 12mm diameter x 70mm long chemical anchors and 20mm thick non-shrink grout under baseplate	No	7		
	STORMWATER RETICULATION/CHANNELS				
	Carried to Collection			R	

	25MPa/19mm Unreinforced concrete:				
35	600 x 150mm Open concrete V-drain stormwater channel with 100mm deep channel cast in 1,5m alternative panels on 150mm subbase material compacted to a minimum of 93% Mod AASHTO dry density, including all necessary excavations, formwork, compaction, grading, carting away, etc.	m	54		
36	Extra over 600 x 150mm V-drain stormwater channel for angle, intersection, end, dressing into sides of catchpits, etc.	No	2		
	Class 100D concrete pipes:				
37	375mm Pipe laid in and including trenches not exceeding 1m deep	m	27		
38	375mm Pipe laid in and including trenches exceeding 1m and not exceeding 2m deep	m	178		
	Extra over concrete pipes for:				
39	Stormwater grid inlet manhole size 1940 x 1940mm exceeding 1m not exceeding 2m deep to invert, consisting of reinforced concrete (25MPa/19mm) base with type 617 fabric reinforcement, 150mm thick projecting 75mm all round, on 50mm blinding layer (10MPa/19mm), one brick walls plastered internally, 200mm thick cover slab on top tapered and rebated for and fitted with and including Type 2A SANS 558 heavy duty cover and frame, including benching, excavations, backfilling, etc.	No	1		
	Extra over excavation in earth for excavation in:				
40	Soft rock	m3	62		
41	Hard rock	m3	31		
	Extra over all excavations for carting off site to a location to be identified by the Contractor:				
42	Surplus material from excavations and stockpiles on site	m3	193		
	Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 93% Mod AASHTO dry density:				
43	Backfilling to trenches, holes, etc.	m3	77		
	Carried to Collection			R	

	Earth filling supplied by the Contractor in backfilling to excavations, etc.:				
44	Over site of G5 material compacted to a minimum of 95% Mod AASHTO dry density in 150mm layers	m3	231		
	Catchpits:				
45	Stormwater catchpit size 1760 x 1760mm not exceeding 1m deep internally to invert, consisting of 150mm thick unreinforced concrete (20MPa/19mm) base, 150mm thick projecting 225mm all round, 230mm brick sides plastered internally, rebated for and fitted with a 450 x 450mm grating and frame, sealed around in tallow, benching as required, excavations, backfilling, etc.	No	1		
46	Stormwater catchpit size 1760 x 1760mm exceeding 1m and not exceeding 2m deep internally to invert, consisting of 150mm thick unreinforced concrete (20MPa/19mm) base, 150mm thick projecting 225mm all round, 230mm brick sides plastered internally, rebated for and fitted with a 1200 x 1200mm grating and frame, sealed around in tallow, benching as required, excavations, backfilling, etc.	No	3		
	Kerb inlets:				
47	Stormwater kerb inlet size 1760 x 1760mm exceeding 1m not exceeding 2m deep internally to invert, consisting of 150mm thick unreinforced concrete (20MPa/19mm) base, 150mm thick projecting 75mm all round, 230mm brick sides plastered internally, rebated for and fitted with two pre-cast concrete covers in steel frame, complete with kerb inlet opening and pre-cast cantilever beam, benching as required, excavations, backfilling, etc. al as per drawing EC0034-MTH-STW-DET-016	No	3		
	Sundries:				
48	Connection of new 375mm concrete pipe (elsewhere measured) with existing manhole, including breaking through side wall of existing manhole, adjusting existing half round channels to take new branch, adjusting existing benching, making good all finishes or elements disturbed, sealing, etc.	No	1		
	Testing:				
49	Allow for testing all external stormwater reticulation piping and components		Item		
	SOIL DRAINAGE				
	Carried to Collection			R	

	Class 34 Unplasticised polyvinyl chloride (uPVC) pipes:				
50	50mm Pipe fixed to wall	m	20		
51	160mm Pipe raking to inspection eye	m	3		
52	160mm Pipe laid in and including trenches not exceeding 1m deep	m	20		
53	160mm Pipe laid in and including trenches exceeding 1m and not exceeding 2m deep	m	51		
	Extra over uPVC piping for:				
54	50mm Vent cowl	No	4		
55	110mm Access bend	No	4		
56	110mm Junction	No	4		
57	160mm Junction	No	6		
58	110mm Access junction	No	4		
59	160mm Access junction	No	3		
60	160 x 50mm Reducer	No	1		
61	160 x 110mm Reducer junction	No	4		
62	110mm Bend	No	3		
63	160mm Bend	No	3		
64	160mm Access slow bend	No	3		
65	160mm Rodding eye	No	3		
	Grease traps, gulley traps, manholes, etc.:				
66	Precast concrete chamber for inspection eye not exceeding 1m deep, including precast concrete base size 450 x 450 x 100mm thick and 300 x 400mm cast iron cover and frame (SANS EN 124 Saint Gobian Hydrex), lid to have 'IE' letters cast in with mortar at top joint, overall size 450 x 450mm wide, including all excavations, backfilling, etc.	No	2		
	Carried to Collection			R	

67	Manhole 1340 x 1340mm not exceeding 1m deep internally to invert level, consisting of 230mm brick sides plastered internally, with unreinforced concrete (20MPa/19mm) base 150mm thick projecting 100mm all round, unreinforced concrete (15MPa/19mm) benching with 20mm thick HAC concrete topping on 1:6 benching slope, rebated for and fitted with Rocla or other approved heavy duty concrete lid and frame (SABS 558-1973) size 740 x 610mm, bedded in 1:3 cement mortar and sealed in tallow including all necessary channels and fittings, excavations, backfilling, holes through sides for pipes, etc. with and including 150mm layer G7 layer to bottom of concrete base compacted to a minimum of 93% Mod AASHTO dry density complete	No	1		
68	Ditto exceeding 1m and not exceeding 2m deep internally to invert level, ditto	No	2		
	Extra over trench and hole excavations in earth for excavation in:				
69	Soft rock	m3	6		
70	Hard rock	m3	3		
	Extra over all excavations for carting off site to a location to be identified by the Contractor:				
71	Surplus material from excavations and stockpiles on site	m3	12		
	Earth filling supplied by the Contractor in backfilling to excavations, etc.:				
72	Over site of G5 material compacted to a minimum of 95% Mod AASHTO dry density in 150mm layers	m3	31		
	Sundries:				
73	Connection of new 160mm PVC pipe to existing manhole, including breaking through side wall of existing manhole, adjusting existing half round channels to take new branch, adjusting existing benching, making good all finishes or elements disturbed, sealing, etc.	No	3		
74	Unreinforced concrete (15MPa/19mm) encasing around 160mm vertical or raking drain pipe to cleaning eye including all necessary formwork	m	3		
	Testing:				
75	Testing complete drainage pipe system		Item		
	ELEVATED WATER STORAGE TANK SUNDRY ITEMS				
	Carried to Collection			R	

	Excavation in earth not exceeding 2m deep:				
76	Bases	m3	32		
	Extra over trench and hole excavations in earth for excavation in:				
77	Soft rock	m3	3		
78	Hard rock	m3	2		
	Extra over all excavations for carting off site to a location to be identified by the Contractor:				
79	Surplus material from excavations	m3	32		
	Risk of collapse of excavations:				
80	Sides of trench and hole excavations exceeding 1,5m deep	m2	30		
	Keeping excavations free of water:				
81	Keeping excavations free of all water other than subterranean water		Item		
	Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 95% Mod AASHTO dry density:				
82	Backfilling to trenches, holes, etc.	m3	5		
	Compaction of surfaces:				
83	Compaction of ground surface under bases, etc.. including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to a minimum of 90% Mod AASHTO dry density	m2	16		
	Earth filling supplied by the Contractor under surface beds or rafts:				
84	G7 Material in accordance with SANS 1200DM in 150mm layers compacted to a minimum of 98% Mod AASHTO dry density	m3	25		
	Sand filling supplied by the contractor:				
85	Under floors	m3	1		
	Carried to Collection			R	

	Prescribed density tests on filling:				
86	Modified AASHTO density test	No	2		
	Unreinforced concrete (10MPa/19mm):				
87	Blinding under bases	m3	1		
	Reinforced concrete (30MPa/19mm):				
88	In bases	m3	5		
89	In stub columns	m3	2		
	Test blocks:				
90	Making and testing 150 x 150 x 150mm concrete test cube (Only test cubes that have passed will be reimbursed)	No	6		
	Rough formwork to:				
91	Square or rectangular stub columns in foundations	m2	12		
	Mild steel reinforcement to structural concrete work:				
92	8mm Diameter bars	t	0.10		
	High tensile steel reinforcement to structural concrete work:				
93	16mm Diameter bars	t	0.28		
94	12mm Diameter bars	t	0.28		
95	10mm Diameter bars	t	0.28		
	All steel to be Grade S355JR				
	Hot dipped galvanised bolts to structural steel elements, etc.				
96	M24 Grade 4.8 bolt 500mm long, screwed one end with lock nut and flat washer, shim plate, etc. and other end including 85 x 85 x 12mm thick steel plate welded to bolt cast in stub column (elsewhere measured)	No	4		
	Galvanised steel pipes (Class 16) including all fixing with brackets, etc.:				
97	80mm Pipe	m	32		
	Carried to Collection			R	

98	100mm Ditto	m	116		
99	50mm Distance piece 400mm long with one end flanged and other end threaded with puddle flange in middle	No	1		
100	80mm Distance piece 220mm long one end flanged and other end left plain with puddle flange in middle	No	2		
101	100mm Distance piece 220mm long ditto	No	2		
	Extra over galvanised steel pipes for:				
102	Flange to 50mm pipe including all bolting, etc.	No	2		
103	Ditto to 80mm pipe ditto	No	12		
104	Ditto to 100mm pipe ditto	No	12		
105	Threading end of pipe for fitting	No	5		
106	80mm 90 Degree bend	No	8		
107	Ditto 45 degree bend	No	2		
108	100mm 90 Degree bend	No	8		
109	Ditto 45 degree bend	No	2		
110	50 x 25mm Reducing flange adapter	No	1		
111	80 x 75mm Ditto	No	4		
112	110 x 100mm Ditto	No	1		
113	100mm Tee	No	1		
	Sundries:				
114	25mm Diameter brass bib tap threaded	No	1		
115	80mm Diameter inlet control float valve with sensor including connection to steel pipe	No	1		
116	80mm Diameter isolating valve	No	1		
117	100mm Ditto	No	1		
	Carried to Collection			R	

	Testing:				
118	Allow for testing all water and other piping to water tower supply and feeds		Item		
	EXTERNAL WATER SUPPLY IN GROUND				
	Municipal water connection:				
119	Provide the sum of R60,000.00 (Sixty Thousand Rand) for municipal water connection etc.		Item		
	Class 10 HDPe PE100 PN10 pressure pipes in accordance with SANS 4427, with spigots and sockets including all straight couplings, cutting and waste, etc.:				
120	25mm Pipe laid in ground or ground filling including excavation not exceeding 1m deep with not less than 800mm cover including bedding cradle and 200mm blanket fill of selected granular material, main fill compacting in layers not exceeding 150mm thick, adjust moisture content to optimum and compact to a density of 90% Modified AASHTO in trenches including carting off surplus displaced material	m	8		
121	50mm Pipe laid in ground or ground filling including excavation not exceeding 1m deep with not less than 800mm cover including bedding cradle and 200mm blanket fill of selected granular material, main fill compacting in layers not exceeding 150mm thick, adjust moisture content to optimum and compact to a density of 90% Modified AASHTO in trenches including carting off surplus displaced material	m	20		
122	110mm Ditto	m	40		
123	50mm Pipe laid in ground or ground filling including excavation exceeding 1m and exceeding 2m deep with not less than 1100mm cover including bedding cradle and 200mm blanket fill of selected granular material, main fill compacting in layers not exceeding 150mm thick, adjust moisture content to optimum and compact to a density of 90% Modified AASHTO in trenches including carting off surplus displaced material	m	43		
124	110mm Ditto	m	88		
	Extra over HDPe pressure pipes for Class 10 HDPe PE100 PN 10 pressure type fittings:				
125	25mm Pipe fittings	No	2		
126	25 x 50mm Reducer	No	7		
	Carried to Collection			R	

127	110 x 50mm Reducer	No	2		
128	50mm Elbow cast in concrete thrust block (elsewhere measured) including a layer of 250um polythene sheet in between bend and concrete to SABS 952 standard	No	2		
129	110mm Ditto (ditto) ditto	No	8		
130	50mm Equal Tee	No	2		
131	110mm Ditto	No	4		
132	110 x 50mm Reducing tee	No	2		
133	110 x 75mm Ditto	No	6		
	Extra over uPVC pipes for AVK cast iron swing check valve flanged fusion bonded epoxy coated external and internally to SANS 1808-10:				
134	50mm Gate valve	No	1		
135	110mm Ditto	No	6		
136	50mm Non-return valve	No	1		
137	110mm Ditto	No	2		
138	50mm Flange adaptor	No	1		
139	110mm Ditto	No	1		
	Sundries:				
140	Unreinforced concrete (10MPa/19mm) in thrust blocks at bends, tees, end caps, etc. including necessary extra excavation, formwork, etc.	m3	1		
141	Municipal chamber for water meter, valve and non-return valve exceeding 1m and not exceeding 2m deep, consisting of unreinforced concrete (20MPa/19mm) base 150 mm thick projecting 100mm all round, one brick walls, 150mm thick precast concrete cover slab on top, rebated for and fitted with and including 900 x 900mm medium duty cast iron single seal cover and frame (cover and frame to be supplied by NMBM), size 1940 x 1940mm including excavations, backfilling, etc.	No	1		
142	Municipal dirt chamber exceeding 1m and not exceeding 2m deep, size 1340 x 1340mm ditto	No	1		
	Carried to Collection			R	

Section No. 4
EXTERNAL WORKS (PROVISIONAL)
Bill No. 1
EXTERNAL WORKS

143	Precast concrete chamber for valve installation as per NMBM details, exceeding 1m and not exceeding 2m deep, including two precast concrete bases size 900 x 190 x 60mm thick and 300 x 400mm cast iron cover and frame (SANS EN 124 Saint Gobian Hydrex) with mortar at top joint, size 647 x 527mm wide, including all excavations, backfilling, etc.	No	1		
144	Valve spindle extension, including approved fixing, etc. as per NMBM standard detail PSL 2/3	No	1		
	Extra over excavation in earth for excavation in:				
145	Soft rock and cart off site to a location to be identified by the Contractor	m3	14		
146	Hard rock ditto	m3	7		
	Fire hydrant and booster connection pedestals				
147	Unreinforced concrete (25MPa/19mm) hydrant or booster connection pedestal 1830mm high extreme, cast around vertical pipe (elsewhere measured) with lower section 610mm below ground, size 305 x 305mm square at base and tapering to octagonal shaped top size 200 x 200mm overall, including necessary excavation, formwork and two coats of paint to exposed surfaces	No	3		
148	80 x 65mm KP2 right angle hydrant valve as SABS 1128 Part 1	No	3		
149	Unreinforced concrete (20MPa/19mm) in hydrant pedestal 900mm high cast around vertical pipe with bottom 300mm below ground, 300 x 300mm square at base and tapering to octagonal shaped top 200 x 200mm overall including necessary excavation, formwork reinforcement and two coats of paint to exposed surfaces	No	3		
	Galvanised heavy duty steel pipes (Class 16) including all fixing with brackets, etc.:				
150	80mm Pipe laid in ground or filling exceeding 1m and exceeding 2m deep, with not less than 1100mm cover including bedding cradle and 200mm blanket fill of selected granular material, main fill compacting in layers not exceeding 150mm thick, adjust moisture content to optimum and compact to a minimum of 90% Modified AASHTO dry density in trenches, including excavations, carting off surplus displaced material, etc.	m	15		
151	80mm Pipe 1600mm long with one end flanged and other end threaded	No	3		
	Carried to Collection			R	

152	Ditto 1900mm long ditto located inside concrete hydrant pedestal (elsewhere measured)	No	3		
	Extra on galvanised steel pipes for the following fittings:				
153	80mm Flange	No	3		
154	80 x 75mm Reducing tee	No	3		
155	110 x 80mm Ditto	No	3		
156	80mm 90 Degree bend to suit brass booster connection	No	3		
157	80mm 90 Degree bend embedded in mass concrete thrust block (elsewhere measured)	No	3		
	Sundries:				
158	Hydrant and spindle to NMBM standards	No	3		
159	Hydrant key to NMBM Fire standards	No	3		
160	Two way brass booster connection to suit local municipal fire standard	No	3		
161	80mm Glycerine filled pressure gauge complete with 15mm connecting pipe, fitted to 80mm galvanised mild steel piping (connection tee elsewhere measured)	No	3		
	Prepare and apply one coat Plascon galvanised iron cleaner, Plascon galvanised iron primer and two coats Plascon Velvaglo Satin paint on:				
162	80mm Galvanised steel pipe	m	15		
	Testing:				
163	Allow for testing all external water supply piping and elements		Item		
	INTERNAL FENCING				
	Clearing of site:				
164	Allow for clearing site for the width of 1m where fencing runs are to be erected including removing trees, shrubs, etc. not exceeding 200mm girth, grubbing up roots and roughly levelling	m	26		
	Carried to Collection			R	

	Betafence Betaview 25 or other approved fencing panels and posts complete with all components, setting up, adjusting, etc.:				
	PVC coated high security fencing and gates ref. 3510 3D. All bolts, nuts and washers to be stainless steel Grade 304. Fixators to be stainless steel Grade 304 and PVC coated. Fence system to be maintenance free and shall carry a 10 year insurance underwritten anti-corrosion guarantee for material and workmanship issued for original panels, posts and fixators. The supplier/erector to be ISO 9001 compliant.				
	Allowance shall be made as required to excavate areas that are too high and to fill depressions with approved filling, carted on site where necessary and well compacted prior to erection of fencing				
165	Zincalu manufactured super wire and PVC coated (Anthracite RAL 7021) weldmesh panels with rectangular apertures of 76.2 x 12.7mm with horizontal and vertical wire of 3mm diameter thickness. Tensile strength of wire to be 500N/mm2 with weld mesh strength of 60% of the minimum tensile strength of the wire. Panels with a maximum width of 3050mm as determined on site and laterally strengthened by 4 x 43mm deep V-profiled horizontal stiffener bends as per manufacturer's specification to ensure sufficient rigidity, fence 2100mm high	m	26		
166	HDG & PVC coated (Anthracite RAL 7021) with a minimum thickness layer of 200mm micron hot dipped galvanised H-shaped posts (corner posts included), with 70 x 44 x 2mm profile with holes inside flanges, sealed with UV stabilized polymer cap, complete with required bolt clamps for fixing to panels (elsewhere measured) and embedded and including 400 x 400 x 600mm deep mass concrete 20MPa/19mm base, excavations, filling, breaking up exiting 80mm thick concrete parking area for bases and repair after installation of posts, etc., posts 2800mm high	No	14		
167	Extra over for stepping post, including all cutting of panels, HDG & PVC coated (Anthracite RAL 7021) with a minimum thickness layer of 200mm micron hot dipped galvanised H-shaped posts, with 70 x 44 x 2mm profile with holes inside flanges, sealed with UV stabilized polymer cap, complete with required bolt clamps for fixing to panels (elsewhere measured) and embedded and including 400 x 400 x 600mm deep mass concrete 20MPa/19mm base, excavations, filling, breaking up exiting 80mm thick concrete parking area for bases and repair after installation of posts, etc., posts 2800mm high	No	2		
168	Serrated top rail, hot dip galvanised and PVC coated (Anthracite RAL 7021) with tooth spikes, 2.5mm thick and 100mm high fitted to top of fencing or gates (elsewhere measured) with M8 x 30 bolts, shear nuts and stainless steel washers	m	26		
	Carried to Collection			R	

169	Zincalu manufactured super wire weldmesh underdig with rectangular apertures of 76.2 x 12.7mm with horizontal and vertical wire of 3mm diameter thickness. Tensile strength of wire to be 500N/mm2 with weld mesh strength of 60% of the minimum tensile strength of the wire. Panels with a maximum width of 3050mm as per manufacturer's specification, underdig 450mm high secured to welded mesh panels (elsewhere measured) with bekafix fixators cut to bottom to fit line of parking and kerb areas	m	26		
170	Single leaf swing pedestrian gate, size 1200 x 2100mm high with zincalu manufactured super wire and PVC coated (Anthracite RAL 7021) weldmesh panels with rectangular apertures of 76.2 x 12.7mm with horizontal and vertical wire of 3mm diameter thickness. Tensile strength of wire to be 235N/mm2. Gate to be lockable including heavy duty support posts, suitable padlock, gate posts, concrete tie beam, etc.	No	1		
171	Double leaf swing pedestrian gate, size 2400 x 2100mm high with Zincalu manufactured super wire and PVC coated (Anthracite RAL 7021) weldmesh panels with rectangular apertures of 76.2 x 12.7mm with horizontal and vertical wire of 3mm diameter thickness. Tensile strength of wire to be 235N/mm2. Gate to be lockable including heavy duty support posts, suitable padlock, gate bolts, concrete tie beam, etc.	No	1		
	Extra over hole excavations in earth for excavation in:				
172	Soft rock	m3	2		
173	Hard rock	m3	2		
	Extra over all excavations for carting off site to a location to be identified by the Contractor:				
174	Surplus material from excavations	m3	4		
	GARDEN FURNITURE				
	Litter bins:				
175	495mm Diameter x 760mm high precast concrete litter bin (colour brown) with exposed aggregate	No	4		
	Wilson Stone or other approved precast concrete external furniture:				
176	Turin rest set bench, grey concrete finish, size 1800 x 450 x 450mm high	No	2		
	Carried to Collection			R	

177	Kowie rest set consisting of table and six chairs, finished in exposed grey, table 1000mm diameter and seats 500mm diameter all secured to the ground	No	1		

LANDSCAPING

All landscaping areas/sections (grassed areas and landscaping detail) must be maintained throughout the whole project period, whether that/those sections have achieved Sectional Completion or not. The whole of the landscaping element must, additionally, be maintained for a period of six (6) months after Practical Completion of the whole project has been achieved. The Tenderer must take note of the intended phasing of the landscaping as indicated on Drawing number 2412-SP-w109P Rev 0 included in these Bills of Quantities and allow in his pricing of grassed areas and landscaping details for the proposed phased/sectional completions.

Cultivation and preparation of areas to be planted

Do not proceed with installation of topsoil and planting mix until all work has been completed. Till the sub-soil into the bottom layer of topsoil or planting mix, loosen soil of sub grade to depth of 50 - 75mm. Spread 50mm layer of topsoil and till together. Add topsoil and planting mix over and till together. Do not compact. Add bonemeal, phosphate and fertilizer during soil installation.

Carried to Collection R

	Plants, shrubs, trees, etc.				
	All trees to be minimum 2m high (planted height). Trees not planted in planters or concrete surrounds are to be planted 1m away from the walkways in 1 x 1 x 1m deep excavated holes.				
	Trees are to be staked where required and the proposes method shall be approved by the Architect. Stakes shall be of sufficient strength to maintain the tree in the upright position. Where guy wires are attached around the tree, the trunk shall be protected with 20mm diameter rubber hose of sufficient length to extend past the trunk by more than 105mm.				
	Plants must be set plumb and braced in position until topsoil or plant mix has been placed and tamped around the bases of the root balls. Plants shall be set so that they will be at the same depth and so that the root balls do not shift or move laterally one year later.				
	All plants to be free from any damage, parasites, fungus or any other plant diseases or insects. No container bound plants will acceptable. All leaves to be dust free.				
	All plants are to be viewed and approved by the Architect before planting. All plants must be transported to the site in trucks with closed canopies. Plants in transit may not be exposed to wind or any other harmful element.				
	Prices for watering all newly planted plants/trees/shrubs twice a week for a period of six (6) months after Practical Completion.				
	Topsoil supplied by the Contractor, including spreading and levelling:				
178	In plant beds, grassed areas and holes for trees, shrubs, etc.	m3	87		
	Compost, fertilizer, etc.:				
179	Compost in plant beds, grassed areas, holes for trees, shrubs, etc.	m3	10		
180	5:1:5 Fertilizer for lawns	kg	5		
181	Super phosphate granular fertilizer for trees, shrubs, ground covers, etc.	kg	5		
182	Bonemeal fertilizer for trees, shrubs, ground covers, etc.	kg	5		
	Plants, shrubs and ground cover:				
183	Tecoma Capensis (4L container)	No	30		
	Carried to Collection			R	

184	Dietes (4L container)	No	30		
	Trees:				
	The Tenderer is to allow in his price for watering all newly planted trees twice a week for a period of 3 months after Practical Completion				
185	Dodonea (Sand Olive) (10L container)	No	6		
	150 - 250mm Diameter tree stumps, sealed with timber sealant before laying, tightly packed on and including DPM layer on 50mm sand blinding layer, embedded in 1:5 paving sand/cement mix in planter areas, etc.:				
186	150mm Thick cut trees stumps over soil	m2	59		
	100 - 250mm Diameter gabion rock set on and including 50mm thick moist mix bedding and haunching mortar:				
187	Garden bed area	m2	59		
	Topsoil from spoilheaps, including spreading and levelling in 200mm layers:				
188	On embankments, etc.	m2	210		
	Grassing, ground covers, etc.:				
189	Kikuyu sods approximately 900 x 450 x 50mm thick to general areas, etc.	m2	874		
	Earth berm including forming to slope,as required:				
190	Selected filling material from stockpiles lightly compacted to create earth berm with a minimum height of 200mm and a minimum width of 940mm	m	20		
	Maintenance:				
191	Maintenance of grassed areas (total area approximately 874m2) including regularly weeding and irrigating as necessary		Item		
	Carried to Collection			R	

Section No. 4

Bill No. 1

EXTERNAL WORKS

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	117		
	118		
	119		
	120		
	121		
	122		
	123		
	124		
	125		
	126		
	127		
	128		
	129		
	130		
	131		
	132		
	133		
	134		
	135		
	136		
	137		
Carried Forward		R	

Section No. 4

Bill No. 1

EXTERNAL WORKS

COLLECTION

	Page No		Amount
Brought Forward		R	
Total Brought Forward from Page No.	138		
	139		
	140		
	141		
	142		
	143		
Carried to FINAL SUMMARY		R	

Section No. 4
EXTERNAL WORKS (PROVISIONAL)
Bill No. 1
EXTERNAL WORKS

Item No		Quantity	Rate	Amount
	SECTION No. 5: SMME PACKAGES (PROVISIONAL)			
	BILL No. 1: SMME PACKAGES			
	SUPPLEMENTARY PREAMBLES			
	Tenderers to take note that 30% of the building works, excluding specialist work, are to be contracted to SMME's. Provisional Sums are provided for this purpose and bids will be called for after award for these packages on a selected sub-contractor basis. The Tenderer is to price all associated administrative, supervision, mentoring costs, profit and attendance in the relevant sections of the Preliminaries as no claims for additional costs will be entertained. The 30% is made up of all building works excluding the following: Provisional Sums Electrical Specialist Works Mechanical Works Escalation and Contingencies These are monetary provisions only and the use, value and payment thereof are subject to adjustment based on actual costs through contractually approved variation orders calculated in terms of the prescribed contractual directives.			
	SMME PACKAGES			
	MASONRY			
1	Provide the amount of R1 400 000.00 (One Million Four Hundred Thousand Rand for SMME package to complete the masonry	Item		1 400 000.00
	PLASTERING			
2	Provide the amount of R360 000.00 (Three Hundred and Sixty Thousand Rand for SMME package to complete the plastering	Item		360 000.00
	DEMOLITIONS & REMOVAL OF EXISTING WORK			
3	Provide the amount of R870 000.00 (Eight Hundred and Seventy Thousand Rand for SMME package to complete the demolitions and removal of existing work	Item		870 000.00
	Carried to Collection		R	

	PARKING AREAS & ROADS			
4	Provide the amount of R3 550 000.00 (Three Million Five Hundred and Fifty Thousand Rand for SMME package to complete the parking areas and roads	Item		3 550 000.00
	PERIMETER FENCING			
5	Provide the amount of R1 300 000.00 (One Million Three Hundred Thousand Rand for SMME package to complete the front perimeter fencing	Item		1 300 000.00
	Carried to Collection		R	

Section No. 5

Bill No. 1

SMME PACKAGES

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	146		
	147		
Carried to FINAL SUMMARY		R	

Item No		Unit	Quantity	Rate	Amount
	SECTION No. 5: PROVISIONAL SUMS				
	BILL No. 1: PROVISIONAL SUMS				
	The Tenderer is referred to the relevant Clauses in the Supplementary Preambles hereunder and Department of Public Works PW371 document				
	SUPPLEMENTARY PREAMBLES				
	General				
	Work for which budgetary allowances are provided will be measured and valued in accordance with clause 32 of the Principal Building Agreement and deducted in whole or in part if not required without any compensation for loss or profit on the said allowances				
	Prime Cost amounts and Provisional Sums are nett. Prime Cost amounts include for delivery to site of all articles concerned				
	Provisional Sums are for material and equipment supplied and installed complete by firms of specialists				
	Builder's work				
	Builder's work in connection with specialist services is given elsewhere in these Bills of Quantities				
	WORK BY CONTRACTOR				
	BUDGETARY ALLOWANCES under this heading are for work to be executed by the Contractor and are to be used at the discretion of the Architect and deducted in whole or in part if not required. The work shall be measured and valued in accordance with the "Conditions of Contract".				
	EXTERNAL AND INTERNAL SIGNAGE				
1	Provide the sum of R100,000.00 (One Hundred Thousand Rand) for External and Internal Signage		Item		100 000.00
2	Profit on above item		Item		
3	Attendance on ditto		Item		
	Carried to Collection			R	

	CARPORTS				
4	Provide the sum of R160,000.00 (One Hundred and Sixty Thousand Rand) for Carports		Item		160 000.00
5	Profit on above item		Item		
6	Attendance on ditto		Item		
	SPECIALIST EQUIPMENT AND FITTINGS				
7	Provide the sum of R800,000.00 (Eight Hundred Thousand Rand) for Specialist Equipment and Fittings		Item		800 000.00
8	Profit on above item		Item		
9	Attendance on ditto		Item		
	HIGH RISE WATER TOWER				
10	Provide the sum of R1,500,000.00 (One Million Five Hundred Thousand Rand) for High Rise Water Tower		Item		1 500 000.00
11	Profit on above item		Item		
12	Attendance on ditto		Item		
	MONETARY PROVISIONS				
	COMMUNITY LIAISON OFFICER				
13	Provide the sum of R112,000.00 (One Hundred and Twelve Thousand Rand) for the employment of a Community Liaison Officer (R8,000.00 per month for the duration of contract plus sundries)		Item		112 000.00
	PLACEMENT OF CANDIDATE PROFESSIONAL				
14	Provide the sum of R210,000.00 (Two Hundred and Ten Thousand Rand) for the Placement/In-Service training of one (1) unemployed graduate towards a Professional Registration within the Built Environment at the cost of R15,000.00 (Fifteen Thousand Rand) per month, employed by the Principal Contractor for the duration of the contract		Item		210 000.00
	Carried to Collection			R	

	PLACEMENT OF STUDENT				
15	Provide the sum of R154,000.00 (One Hundred and Fifty Four Thousand Rand) for the Placement/In-Service training of one (1) student within the Built Environment at the cost of R11,000.00 (Eleven Thousand Rand) per month, employed by the Principal Contractor for the duration of the contract		Item		154 000.00
	Carried to Collection			R	

Section No. 6

Bill No. 1

PROVISIONAL SUMS

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	149		
	150		
	151		
Carried to FINAL SUMMARY		R	

MOTHERWELL CHC: PHASE 1 - FINAL SUMMARY

Section No		Page No		Amount
1	PRELIMINARIES	32		
2	BUILDING WORKS	106		
3	PLUMBING & DRAINAGE (PROVISIONAL)	116		
4	EXTERNAL WORKS (PROVISIONAL)	145		
5	SMME PACKAGES (PROVISIONAL)	148		
6	PROVISIONAL SUMS	152		
	ELECTRICAL INSTALLATION			
	VOLUME 1.1: ELECTRICAL INSTALLATION		SUM	
	VOLUME 1.2: ICT INSTALLATION		SUM	
	MECHANICAL INSTALLATION			
	VOLUME 2.1: MECHANICAL INSTALLATION - Heating Ventilation & Air Conditioning		SUM	
	VOLUME 2.2: MECHANICAL INSTALLATION - Fire Protection Installation		SUM	
	VOLUME 2.3: MECHANICAL INSTALLATION - Domestic Water		SUM	
	Sub Total		R	
	MONETARY PROVISIONS			
	The following monetary provisions have been made in the contract and must be omitted from the contract sum at the start of the contract and used as directed below.			
	Please note: These are monetary provisions only and the use, value and payment thereof are subject to adjustment based on actual costs through contractually approved variation orders and escalation costs calculated in terms of the prescribed contractual escalation calculations directives respectively.			
	Carried Forward		R	

MOTHERWELL CHC: PHASE 1 - FINAL SUMMARY

Section No		Page No		Amount
	Brought Forward		R	
	CONTINGENCIES			
	Provide the sum of R 1,000,000.00 (One Million Rand) for Contingencies to be used or deducted in full at the Principal Agent's discretion		R	1 000 000.00
	ESCALATION			
	Provide the sum of R 1,200,000.00 (One Million Two Hundred Thousand Rand) for statutory increase (CPAP), to be adjusted, used and paid as instructed by the Client for and based on contractually calculated escalation per item 25.3.4 of the contract data of the Preliminaries Bill and in terms of clauses 17, 25 and 26 of the Principal Building Agreement (refer JBCC).		R	1 200 000.00
	Sub Total		R	
	VALUE ADDED TAX 15%		R	
	TOTAL BUILDING WORKS INCLUDING VAT		R	
	Carried to C1.1 - Form of Offer and Acceptance		R	

VOLUME 1.1

ELECTRICAL INSTALLATION

Vol. 1.1 Part 1
DETAILED SPECIFICATIONS

PROJECT TITLE:	**UPGRADE & ADDITIONS TO EXISTING BUILDINGS EMS, GATE HOUSE, REFUSE AND REHAB AT MOTHERWELL CHC– ELECTRICAL INSTALLATIONS**

Contents

1.0 INTRODUCTION & GENERAL

Should there be any conflict or ambiguity between sections of this enquiry, then the sections will be considered in the following order of priority: -

- Schedule of Quantities
- Detailed Specification
- Drawings

Should the Tenderer notice any inconsistencies between these sections, it is his responsibility to notify the Engineer in order to obtain clarification thereon.

2.0 SCOPE OF WORK

The main contract is for the Upgrade & Additions to Existing Building EMS, Gate House, Refuse and Rehab at Motherwell CHC, Motherwell, Gqeberha.

The Electrical installations shall entail but not limited to following:

- Installation of new Main and sub–Distribution Boards;
- Installation of new LED lights throughout the building;
- Installation of Normal and Dedicated socket outlets, wall mounted, ceiling mounted and on power skirting;
- Installation of new socket outlets and isolators for mechanical engineering installations (HVAC);
- Installation of new socket outlets and isolators for Main Gate and Turnstile.
- Installation of wires ways for electrical, IT and Security installations viz; PVC conduits, cable baskets and cable trunking
- Removal and disposal of existing electrical installations
- Installations of mains cables from existing Mains Panel for Normal power supply to upgraded Distribution Board supplying the EMS building. This shall include replacement of existing feeder breaker with breaker suitable for the additional building load.
- Installations of mains cables from existing Essential Panel for Essential power supply to upgraded Distribution Board supplying the EMS building. This shall include replacement of existing feeder breaker with breaker suitable for the additional building load.
- Installations of mains cables from Main Panel for Normal power supply to new Distribution Board supplying the Rehab Building. This shall include installation of new feeder breaker with breaker suitable for the building load.
- Installations of mains cables from Essential Panel for Essential power supply to new Distribution Board supplying the Rehab Building. This shall include installation of new feeder breaker with breaker suitable for the building load.
- Earthing, testing and commissioning of the entire installation including issuing of Certificate of Compliance for each DB.
- Installation of new Turnstile

- Etc.

2.1 General Electrical Installation

The Works will be executed in strict accordance with the following: -

a) The Wiring Code - SANS 10421-1: 2008,

b) Interior Lighting Part 1: Artificial Lighting of Interiors; Part 2: Emergency Lighting – SANS 10114-1,

c) The Occupational Health and Safety Act, 1993 (Act 85 of 1993) as amended.

The general electrical installation is reflected on a set of drawings attached to this tender document.

a) The Subcontractor to be mindful of the fact that the site is occupied at all times.

b) The subcontractor will be responsible for removal of existing electrical installations viz; lighting, trunking, conduits, cables, etc. The pricing to include disposal of unwanted material.

c) The Subcontractor will be responsible for the supply and installation of new LV mains cabling between new distribution boards and existing mini-substation including replacement of circuit breakers for the new cables.

The DBs are located on various areas within the building as shown on the power layout.

d) For the mains cables between main panel, Generator and upgraded Distribution Boards, the subcontractor will be required to trace existing cables, remove them and install new cables following the route of removed cables.

e) Supply and installation of

- complete building electrical installation including cabling, distribution boards and wireways for security and ICT cabling,
- the installation and connection to power of such equipment as may be supplied by the Employer or other Employer's contractors, and
- Testing of the Electrical installation and issue Certificates of Compliance.

f) Produce marked up As-Built drawings of the Electrical Installations and be submitted to the Engineer

g) Produce Operation & Maintenance Manuals for the all new equipment where necessary.

The description of the Works listed above, is not necessarily complete and shall not limit the work to be carried out by the Subcontractor under this Contract.

2.2 Specialised Installation

No allowance for specialised installations on this contract.

2.3 Temporary Works

No temporary works are envisaged in the current design and planned execution of the works except where the Subcontractor wants to incorporate it as part of his work method. In case the requirement for such is necessary, the subcontractor to arrange with Engineer for a variation order of such work before it is carried out.

3.0 SYSTEM LOW VOLTAGE

The supply to all the Electrical installation shall be 400/230 Volts, 3-phase, 4 wire, 50 Hertz, Earthed Neutral.

4.0 NOTICES AND FEES

The Subcontractor shall liaise, issue all notices to and make the necessary arrangements with the Technical department of the hospital for planned power disruptions.

5.0 QUALITY OF MATERIALS

Materials are to comply with the relevant South African National Standards (SANS), or to IEC specifications, where no SABS specifications exist. All materials used shall bear the SABS or IEC mark of approval as applicable.

NB: All materials must be of South African manufacture. The Subcontractor must submit proof of unavailability where this requirement cannot be fulfilled.

6.0 BALANCING OF LOAD

The Subcontractor is required to balance the load as equally as possible over the multiphase supply **before Final Completion**.

7.0 BUILDER'S WORK

Subject to negotiations the following may be provided by the Contractor under the building works contract: -

- Making good all chasing

8.0 SCHEDULES OF INFORMATION

The schedule of information contained in this document consists of 2 sections:

a) Information supplied by the Employer (schedules of; drawings, cables, luminaires, etc. as applicable.)

b) Information to be supplied by the Subcontractor at bidding stage (information on the makes, types and ratings of equipment and materials offered, schedules of prices and rates for variations, schedules of quantities, etc. as applicable.)

Bidders are required to enter, at the time of bidding, in the "Schedule of Equipment and Material Offered", sufficient details to enable the equipment concerned to be identified without ambiguity.

It is not sufficient for a tender to state "as specified" in the schedules.

Failure to complete these schedules (if applicable) may render a bid invalid.

9.0 SCHEDULE OF LUMINAIRES

9.1 All luminaires to

- LED lights with suitable constant current drivers,
- 3m cable with 5A plug,

- bear a SABS or IEC mark of quality approval
- with average lifespan of 50 000 hours
- Power Factor > 0.9

9.2 LED luminaires to be 4000K

Type	Description
A	44W LED surface mounted linear luminaire with: • Body – Formed mild steel sheet metal, finished with a durable (RAL 9003) white powder- coated paint • Diffuser – UV Stabilized, impact-resistant translucent polycarbonate • Dimensions –1450mm (L)
JS	40W LED Recessed mounted luminaire with: • Body –Aluminum • Non-dimmable • IP Rating – IP20 • Dimensions –600mm (L) x 600mm (W)
JSE	Type JS above with 50% maintained emergency lighting for 1 hour
Z	11W LED downlight luminaire • Body – Die cast extruded aluminum • Dimensions – 96mm diameter x 130mm
S	35W LED Post top luminaire. • Body – painted housing aluminium • Diffuser – High impact acrylic Note: luminaire price on the Schedule of Quantities to include fiberglass reinforced 4,6m pole complete with spigot, access door, base plate, cable glands and 5A MCCB.
N	20W LED module bulkhead wall/ceiling mounted luminaire with: • Body – base and trim to be made of high-pressure die-cast marine grade aluminium • Stainless steel helicoils inserts to avoid metal corrosion. • Diffuser – Opal non-discolouring high impact acrylic injection molded diffuser • Environmental Protection – IP 65 • Vandal resistant screws • Colour – black
G1	Vapour Proof luminaire with 52W LED strips surface wall/ceiling mounted with:

	• Diffuser – Translucent polycarbonate UV stabilized diffuser • Minimum Dimensions –1250mm (L) Protection - IP 65
EL	Wall mounted LED Examination light with a reach of 1.2m. • Luminance output – 50000 lux @ 500mm • Supply voltage – 220 -240V at 50Hz • Electrical Output – 12V DC / 12W • Electrical safety Classification – Class 2 type B • Lamp body – Plastic Molded with Anti-microbiol additive • Arm – Aluminum: Natural Anodised • Colour - Lamp body – White Arm – Natural Anodised Cover Caps – White IP Rating - 54

10.0 SAMPLES AND ALTERNATIVES

10.1 Prior to installation the Subcontractor is required to submit for approval, comment or records, samples of materials upon which his offer is based. Any approvals given or comments made shall be on the generality of the scheme and shall not relieve the Subcontractor of his responsibility to ensure full compliance with all performance and regulatory criteria and materials latent defects.

10.2 Samples forwarded shall be labelled and remain in the site stores until completion of the Works. The samples may be the last items to be embodied in the installation.

10.3 All expenses in do with the supply and return of the samples shall be borne by the Subcontractor.

11.0 SUPERVISION, WORKMANSHIP AND DELAYS

The work shall at all times, for the entire duration of the contract, be executed under the supervision of a skilled and competent representative of the Subcontractor, who must be able and authorized to receive and execute instructions on behalf of the Subcontractor.

In the event that inferior materials or bad workmanship, on the part of the Subcontractor, leads to remedial work requiring redesign by the Engineer, the cost of this work, including related professional fees, shall be borne by the Subcontractor.

Similarly, should delays in the contract be caused by poor performance on the part of the Subcontractor causing the Engineer to spend extraordinary time on the project, the extra costs incurred may be borne by the Subcontractor.

These costs will be based on the ECSA hourly rates and may be deducted from claims due or claims which will become due to the Subcontractor.

12.0 MAKING GOOD

The Subcontractor will carry out in all instances any work to be made good such as damage to or disturbances of the building installations caused by themselves or their employees during the execution of the contract, at their own cost.

13.0 COMMISSIONING AND TESTING

13.1 Commissioning

A documented method shall be followed, whereby the Subcontractor shall ensure that his installation is correctly constructed in accordance with the manufacturers' specifications, consultant's specification, consultant's design and all codes of practice and international design codes.

The commissioning procedure must allow for signing off of the major items of equipment by a qualified person in terms of the codes. These signed off documents will form part of the record drawings.

The Subcontractor will arrange for all inspections and testing of the installation after completion, including the issuing of the Certificate of Compliance. All notices, fees, including inspection and re-inspection are the responsibility of the Subcontractor and all the relevant costs shall be borne by him.

Any materials or workmanship considered as faulty or incorrectly or inadequately installed or repaired, will be substituted, altered or rectified to the approval of the Employer, without additional cost to the Employer.

14.0 CONSTRUCTION PROGRAMME

The Subcontractor must submit their construction programme to the Main Contractor who will amalgamate it into the project's overall construction programme.

15.0 DRAWINGS

15.1 General

Drawings must be read in conjunction with this Specification and the Bills of Quantities. Any errors, discrepancies or contradictions found between the Drawings, the Specifications and the Bills of Quantities must be brought to the attention of the Engineer immediately, they become evident.

The drawings generally show the scope and extent of the proposed work and shall be construed as showing every minute detail of the work to be executed.

Construction Drawings will be issued to site accompanied by drawing issue slips. The drawing issue register reflecting the summary of all previously issued drawings with dates and drawing revisions will be issued at the site meetings once a month.

15.2 Record / As-Built Drawings

The Subcontractor must prepare Record/As-Built drawings of the completed installation indicating actual cable runs, circuiting, distribution board details, final cable sleeves positions, luminaire, power point layout details, etc. The contract will not be deemed complete until these drawings have been submitted to the Engineer.

16.0 MEASUREMENT

The Subcontractor shall not make any assumption regarding the installation. If there is any doubt or ambiguity, they must consult the Engineer. The Subcontractor shall take cognisance of the fact that the schedule of quantities is re-measurable and final quantities may be adjusted at the end of the contract.

a) All outlet boxes up to 100 x 100mm are measured as one item regardless of the number of conduit entries.

b) Outlet boxes shall be without covers and draw boxes shall include covers, screws, etc.

c) Conduit boxes shall always include the fixing to the conduit with lock and bush nuts.

d) All switches and plug (SSO) units shall include the fixing to conduit and shall include screws, cover plates.

e) All fittings, equipment and accessories shall include connections to power. All light fittings shall be complete with lamps and tubes.

f) All measurements are net Tendered rates must allow or wastage.

17.0 MONTHLY CERTIFICATES

Pro forma claim form will be available from the Engineer in Excel format. This is the preferred method of submitting payment claims. Should the Subcontractor have developed his own method of claiming, this may be submitted to the Engineer for consideration.

18.0 LV DISTRIBUTION BOARDS

All distribution boards (DBs) will be supplied, wired and complete with all equipment of quantities, types, sizes, colour and ratings as specified on the distribution board schematics, which are included in this document. The distribution boards shall be manufactured in accordance with the Standard Specification for Electrical Building Services.

The Subcontractor shall confirm on site, before commencing with any work that sufficient space and access is available to install the DBs as specified. No additional claims for failure to check these details and rectify any default will be entertained.

Before handing over, the DBs shall be thoroughly cleaned inside and outside. Damaged finished surfaces shall be made good where necessary with identical paint to the original finish.

18.1 Manufacture

The electrical distribution boards are to be manufactured by a reputable company, with relevant experience in the manufacturing of electrical distribution boards, control panels, etc.

Approval of the manufacturing company should be obtained from the Consulting Electrical Engineers prior to the placing of any orders/commencement of Works.

Detailed wiring diagrams and shop (manufacturing) drawings of the proposed electrical distribution boards are to be submitted to the Consulting Electrical Engineers for approval, prior to manufacture.
Approval of the wiring diagrams and shop (manufacturing) drawings by the Consulting Electrical Engineers does not remove any responsibility from the Electrical Sub-contractor to ensure the completeness and compliance of the distribution boards.

The Electrical Sub-contractor shall ensure that each electrical distribution board is constructed to fit into the space provided, that sufficient space is allowed for the cable ends and termination thereof and that each board is provided with an architrave and a hinged plastic cover.

The electrical distribution boards shall be a protection rating of no less than IP 55 and the material to be 3CR12.

All gland plates, as well as top or side plates used for the termination of cables shall be easily removable to facilitate the drilling and punching of holes.

Panels (fascia) and cover plates are to be fixed to the framework by means captive fasteners. Self-tapping screws or dome nuts will not be accepted. Panels (fascia) and cover plates are to be fitted with chrome plated handles to facilitate removal.

Each circuit breaker shall be clearly labeled / numbered in accordance with the single line diagrams. Circuit descriptions shall be clearly typed on the stickers.

All main switches shall be clearly marked “MAIN SWITCH” and the necessary warning labels are to be installed at the switch.

Each distribution board shall have sufficient ways for each circuit neutral and each circuit earth wire. Doubling up of circuits w.r.t terminations will not be accepted.

Particular note shall be taken of the fault current requirements of each electrical distribution board. Unless otherwise stated, electrical distribution boards shall be rated for a minimum fault current rating of 6 kA.

All electrical distribution boards are to be fitted with surge protection, as is required by the relevant regulations.

The electrical distribution boards are to be labelled as detailed above and in accordance with SANS 10142.

18.2 Cascading

All DBs circuit breakers must be cascaded from the same manufacture and cascading group. Mixing of circuit breaker makes is <u>not</u> allowed.

Each cascaded DB must be marked with a label

a) informing that circuit breakers are cascaded and

b) that replacement and / or additional circuit breakers must be chosen from the same circuit breaker group.

18.3 Shop Drawings

Prior to manufacturing of DBs subcontractor will prepare and issue shop drawings of each DB to Engineer for approval. If the shop drawing is prepared by the manufacturer the subcontractor shall thoroughly review the drawings to ensure they match Engineer's schematic line diagrams before handing them over to the Engineer.

19.0 DISTRIBUTION CABLES

19.1 Low Voltage (LV)

All PVC Insulated PVC bedded SWA PVC sheathed 600/1000V copper cables shall conform to SANS 1507-3 and bear the SABS mark. Cables shall be of sizes and type as shown on the drawings.

Cables shall be supplied with their corresponding termination and as well as corresponding bare copper earth wire. The Subcontractor is advised to measure actual lengths of cable required on site before ordering as no compensation for over-measurements shall be entertained.

20.0 OCCUPANCY SENSORS

Surface mount dual-load 360^0 PIR occupancy sensors for controlling lights. Positions as shown on the lighting layout. The table below provides detail description of the sensors

Technology	Passive Infra-red
Photocell	Built-In
Mounting	Ceiling (Surface-mount)
IR Remote Control	NO
Rated Voltage	230Vac+/-10%, 50/60Hz
Load	Dual load independent control. Load 1 for lighting: Incandescent Lamp: max. 2000W AC Halogen Lamp: max. 1000W LV Halogen Lamp: max. 1000VA Fluorescent Lamp: max. 900VA/100µF Load 2 (D1-D2) for HVAC Max. 5A (cosφ=1) 250VAC or 30VDC Motor: 1/10HP (approx.73W)
HVAC Relay (2nd Channel)	NO
Detection angle	360^o
Detection range forward adjustable	7M at 2.5M height
Stair-timer / Short impulse Mode	Yes
Timer adjustable precisely	Time 1 (for lighting): Adjustable from 5 sec to 20 min, plus test (2sec on, 2sec off) & (short impulse: 1 sec on, 9 sec off) Time 2 (for HVAC): Adjustable from 10 sec to 60 min
Meter adjustable	Yes
Lux adjustable precisely	10 Lux to 2000 Lux
Test Mode	Yes

Auto/On/Off manual switch	Yes
Parallel circuit operation	Yes
Environmental protection	IP40
Operating temperature	0°C to 45°C 0~95%
Product colour	White

21.0 WIRING CHANNELS

GENERAL

The channels shall be manufactured of rolled sheet steel. The minimum thickness of the sheet steel shall be:

- 1,6mm for ribbed channels with a maximum width of 42mm.
- 2,5mm for unribbed channels with a maximum width of 42mm.
- 1,2mm for channels with a width in excess of 42mm.

The channels shall be finished as follows:

(a) In coastal areas (under all installation conditions)	Hot-dip galvanised to SANS 32 & 121 or epoxy powder coated
(b) Cast in concrete	Pre-galvanised
(c) False ceiling voids	Pre-galvanised
(d) Vertical building ducts coated	Hot-dip galvanised to SANS 32 & 121 or epoxy powder
(e) Surface mounted in plant rooms, substations, service tunnels, basements	Epoxy powder coated or electro galvanized
(f) Damp areas, exposed to weather underground runs in contact with earth	Hot-dip galvanised to SANS 32 & 121 or epoxy powder coated
(g) Undercover industrial applications	Hot-dip galvanised to SANS 32 & 121 or epoxy powder coated

The above-mentioned finishes shall apply unless specified to the contrary or approved - by the Employer. Hot-dip galvanised ducts shall be cold galvanised at all joints. sections that have been cut and at places where the galvanising has been damaged. Powder coated ducts shall likewise be touched up at joints, cuts and damaged portions using methods recommended by the manufacturer of the channels.

Cover Plates

All channels shall be supplied with cover plates.
Channels up to 127mm wide shall have snap-in cover plates of metal or PVC.
For channels wider than 127mm only metal cover plates shall be used.
The finish of steel cover plates shall be the same as the finish of the channels.

Accessories

All accessories i.e. hangers, brackets etc. shall be purpose made and in general have the same finish as the channels.

Wiring Supports
Wiring supports shall be provided in order to prevent the wires falling out when cover plates are removed.

22.0 EARTHING AND BONDING

22.1 General

Earthing shall generally be in accordance with

- SANS 10142-1: 2008 Wiring Code,
- SANS 10198: Part 3 - Earthing System; General Provision; Part 12 - Installation of Earthing Systems,
- SANS 10200: Neutral Earthing in Medium Voltage Industrial Power Systems,
- SANS 10292: Earthing of Low Voltage Distribution Systems,
- SANS 1063: Earth Rods Couplers and Clamps,
- AMEU Code of Practice for the application of protective multiple earthing to low voltage distribution systems and
- The latest amendments and the OHS Act 1993.

22.2 Water pipes

All metallic hot and cold-water pipes shall be bonded with 12mm x 0,8mm perforated for solid copper strapping and connected to the nearest system earth. The strapping shall be fixed to the pipework with brass nuts and bolts and against walls with brass screws at 150-mm centres. In all cases where metal water pipes, down pipes, flues, etc., are positioned within 1,6m of switchboards an earth connection consisting of copper strapping shall be installed between the pipework and the board.

22.3 Roofs, gutters and down pipes

Unless not included in the Lightning Protection System (LPS), all metal parts of roofs, gutters and down pipes shall be earthed.

22.4 Sub-distribution boards

A separate earth connection shall be supplied between the earth busbar in each sub-distribution board and the earth busbar in the Main Switchboard. These connections shall consist of bare stranded copper conductors installed along the same routes as the supply cables or in the same sleeve or ladder as the power conductors.

Alternatively, armoured cables with earth continuity conductors included in the armouring (ECC) may be utilised where specified or approved.

22.5 Sub-circuits

The earth conductors of all sub-circuits shall be connected to the earth busbar in the source DB in accordance with SANS 10142.

22.6 Common Earth

Common earth conductors may be used where various circuits are installed in the same wire way in accordance with SANS 10142. In such instances the sizes of earth conductors shall be equivalent to that of the largest current carrying conductor installed in the wire way, alternatively the size of the conductor shall be as directed by the Engineer. Earth conductors for individual circuits branching from the ring main shall by connected to the common earth conductor with T-ferrules or soldered.

NB: The common earth shall not be broken.

22.7 Non-metallic Conduit

Standard copper earth conductors shall be installed in the conduits and fixed securely to all metal appliances and equipment, including metal switch boxes, socket-outlet boxes, draw-boxes, switchboards, luminaires, etc. The securing of earth conductors by means of self-threading screws will not be permitted.

22.8 Flexible Conduit

An earth conductor shall be installed in all non-metal flexible conduits. This earth conductor shall not be installed externally to the flexible conduit but within the conduit with the other conductors. The earth conductor shall be connected to the earth terminals at both ends of the circuit.

22.9 Connection

Under no circumstances shall any connection points, bolts, screws, etc., used for earthing be utilised for any other purpose. It will be the responsibility of the Subcontractor to supply and fit earth terminals or clamps on equipment and materials that must be earthed where these are not provided.

Unless earth conductors are connected to proper terminals, the end shall be tinned and lugged.

22.10 Earth Terminal for Other Services

A readily accessible earthing terminal shall be provided, near the trap door in the ceiling, for the bonding of other services such as a television aerial or satellite dish, an audio system, a video surveillance system, and the like, to the building. Such an earthing terminal shall be bonded to the consumer's earth terminal in the main distribution board by a conductor of at least 6mm² copper or equivalent, and shall be identified by the earth symbol.

NOTE: Providers of services other than the electrical power services should not access the distribution board or other parts of the electrical installation.

23.0 CONDUIT, WIREWAYS AND ACCESSORIES

23.1 Conduit

All conduit/outlet boxes and associated fittings for use in this installation shall bear the SABS mark approved.

The Subcontractor must provide all conduit and accessories for the lighting, power, telephone, communications, computer and security systems, as shown on the drawings and as measured in the schedule of quantities.

Flexible metallic tubing of galvanized steel shall be used for connections to water heaters, fans and other similar equipment. The corrugations of the tubing shall have a rectangular cross section suitable to fit standard brass connections.

23.2 Wiring Trunking / Channel

Wiring channels in ceiling voids and wherever indicated on the drawings shall be medium duty of Cab-strut, Cooper B-Line or similar manufacture and shall be complete with corner pieces, end pieces, hangers, junction pieces, supply conduits, cover plates and power outlets as specified and indicated on the drawings. Note that Nylon or plastic nuts or fasteners will not be accepted.

The channels shall be manufactured of rolled sheet steel and hot-dip galvanised to SANS 763.

Channels shall be cold galvanised at all joints, sections that have been cut and at places where the galvanising has been damaged.

The wiring channels' metal covers shall be pop-riveted closed, once the installation is complete.

24.0 ACCESS CONTROL

The subcontractor shall Supply, Install, test and commissioning of a 4-arm bi-directional single turnstile suitable for high volume access and high levels of security. Turnstile shall be controlled by means of a single push button located in Gate House and a remote carried by security guard.

Turnstile material to be mild steel with hot dip galvanised finish suitable for highly corrosive environment. Dimensions (Width: 1400mm, Height: 2125mm)

Power	220 Volt AC
Frequency	50Hz / 60Hz
Power Consumption (Standby)	50W (single turnstile)
Rotor Diameter	1 200mm
Weight	160 kg
Solenoid Voltage	24 Volt DC

25.0 GATE MOTOR

The subcontractor shall. Supply, Install, test and commissioning of gate motor suitable for industrial site for a heavy-duty sliding gate and heavy traffic. The gate motor to be complete with lockable motor cover, theft cage and beams for sensing.

26.0 WIRING

Lighting and Power wiring in conduit and channel wireways shall comprise 600/1000V single core PVC insulated copper wire sized in accordance with the distribution board schematics. Conductor outer sheaths shall be of the following colours: -

- Phase Conductors : red, white, blue
- Neutral : black
- Earth : yellow + green

27.0 WALL SWITCHES AND SWITCH SOCKET OUTLETS

Wall switches to be of the flush type complete with cover plates and screws in 100 x 50 x 50 extension outlet boxes mounted on the wall surfaces. Colours of outlet boxes and cover plates must match.

All surfaces mounted switch socket outlets to be in 100 x 100 x 50 extension outlet boxes mounted on the wall surfaces. Colours of outlet boxes and cover plates must match.

All switched socket outlets mounted in power skirting to have matching cover plates.

The Subcontractor will be responsible for the installation of power points to feed equipment such as water heaters, air-conditioners, fans, security equipment, etc. This equipment, if supplied and installed by others, will be connected by the Subcontractor.

The cover plates to all outlets shall be fixed **AFTER** the final coat of paint has been applied.

All light switches and power points shall be labelled with indelible circuit numbers to tie up with a circuit number in the distribution boards. Labels shall be engraved Trifoliate or similar approved type. Labels, like Brother™ labels that peel off easily shall not be acceptable.

28.0 TELEPHONE, COMPUTER AND SECURITY INSTALLATIONS

The Subcontractor will be responsible for the complete installation of conduits and wireways for the I.C.T and security systems.

29.0 EQUIPMENT GUARANTEES, MAINTENANCE AND INSTRUCTION MANUALS

The Contractor shall submit to the Engineer all manufacturers' equipment guarantees, maintenance and instruction manuals. All equipment shall be guaranteed for twelve (12) months from the date of Practical Completion Certificate.

30.0 COMMISSIONING AND TAKE-OVER

The Contractor shall carry out the necessary tests according to the SANS 10142-1, the latest edition and provide a certificate of compliance on completion of the works. The certificates of compliance shall be of the approved type as issued by the Electrical Contracting Board of South Africa.

30.1 Completion

The electrical installation shall be complete after:

(i) All tests for the switchgear and cables have been done and tests results submitted to the Engineer.

(ii) The completed certificates of compliance have been submitted to the Engineer.

(iii) All equipment guarantees, maintenance and instruction manuals have been submitted to the Engineer.

(iv) The site has been cleared of all debris and electrical waste materials and left in a neat and tidy condition.

(v) "As-Built" drawings of the Works; and

(vi) Certificates for Distribution boards have been submitted to the Engineer.

PROJECT TITLE:	**UPGRADE & ADDITIONS TO EXISTING BUILDING EMS, GATE HOUSE, REFUSE AND REHAB AT MOTHERWELL CHC– ELECTRICAL INSTALLATIONS**

BILLS OF QUANTITIES - NOTES TO TENDERERS

1 All queries will only be answered in writing by the Engineer responsible for the project.

2 The Bills of Quantities form part of and must be read in conjunction with the specification which contains the full description of the work to be done and material and equipment to be used. Unless otherwise described in the Bills of Quantities, reference should be made to the specification for the full meaning of description of work to be done and materials and equipment to be used in this service. Tenderers are requested to check the formulas in the Bills of Quantities and are responsible for the accuracy of their formulas/calculations.

3 The total tender price in the tender form shall constitute the contract price of the successful Tenderer. Tenderers are advised to check their item extensions and total additions, as no claim for arithmetical errors will be considered.

4 No alterations, erasure or addition is to be made in the text of the Schedule of Prices. Should any alteration, erasure or addition be made it will not be recognised but the original wording of the Schedule of Prices will be adhered to.

5 The Priced Bills of Quantities of the successful Tenderer will be checked and the Employer reserves the right to call for adjustments to any individual price and to rectify any discrepancy whilst the total tender price, as submitted, remains unaltered.

6 The responsibility for accuracy of the quantities written into the schedules remains with the person who prepared the schedules. The Tenderer shall be relieved of responsibility of measuring quantities at the tender stage, and the tender sum submitted shall be in respect of the quantities set out in the schedules although he will be required to make his assessment of items such as brackets, fixings, etc., from details stated in the schedules and shall include in the item prices for such small installation materials as are required for the complete installation in accordance with the specification. Conductor prices shall include for wastage and sagging.

7 All conductors have been measured exclusive of sagging and wastage. The Contractors prices must therefore include for sagging as well as wastage.

8 All prices entered in these Bills of Quantities shall include for supply [unless otherwise stated], installation, testing, commissioning, guarantee with free maintenance during the Guarantee period and profit but excluding VAT.

9 The successful Tenderer and the Employer or his Agent may agree that the total of any bill or bills, including any variations by way of additions thereto or deductions therefrom, represents a fair accurate quantification of the items set out in the bills and the parties may agree to final payment on that basis. In the event of any dispute as to the quantities, the disputed item or items shall be adjusted where necessary.

10 The quantities in these Bills of Quantities are not to be used for ordering materials.

11 The description of each item shall, unless other-wise stated herein, be held to include making, conveying and delivering, unloading, storing, unpacking, hoisting, setting, fitting and fixing in position, all installation materials and sundries, cutting and waste, sagging, patterns, models and templates, plant, temporary works, return of packing, establishment charges, profit and all other obligations arising out of the conditions of contract.

12 All measurements are net and Tenderers must allow for wastage in the item rate submitted.

13 All provisional sums shall be expended as directed by the Employer and any balance remaining shall be deducted from the amount of the contract sum.

All items described as "Provisional" shall be measured as executed and paid for according to prices in the Bills of Quantities and any unexpended amounts shall be deducted from the amount of the contract sum. No work for which "Provisional" items are provided shall be commenced without written instructions from the Employer.

14 It is a requirement of the contract that the work shall be carried out in the manner that is most economical on materials. Unless otherwise indicated by the Employer, the Electrical Contractor is required to use the shortest practical route for all conductors subject to the restrictions of the specification and good electrical practice.

15 The terms in the Bills of Quantities are based on standard Eskom/Telkom assemblies. The Tenderer shall take careful notice to the make-up of these assemblies with regard to the inclusion/exclusion of excavation, poles, stays, earthling and other items.

16 The prices shall be fixed and not subject to adjustment for inflation for the period between contract and programmed completion as set out in the contract.

Tenderers are to specifically note that the Bills of Quantities must be priced as per the quantities provided. Any change in the descriptions and/or additional information must be made in an alternative offer.

No quantities in the original Bills of Quantities or description of equipment offered are to be changed and must remain as is.

Note:

It will be expected of the successful tenderer to submit a full re-measured Bills of Quantities within twenty-one [21] days after acceptance of the tender price.

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB

ELECTRICAL INSTALLATIONS

BILL NO. 1 : PROVISIONAL AND SUPERVISION AMOUNTS

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
	A Preliminary and General item is provided to cover the Contractor's charges for compliance with the Conditions of Contract and this Specification, including the provision, maintenance and removal of his site establishment, etc.				
1,10	FIXED CHARGES				
1.1.1	Site Establishment	Sum	1		
1.1.2	Removal of Site Establishment	Sum	1		
1.1.3	Provision of Electricity and Water	Sum	1		
1.1.4	Provision of Toilet Facilities	Sum	1		
1.1.5	**Other Fixed-charge Obligations**	Sum	1		
	(Please Specify).	Sum	1		
	. . . . .	Sum	1		
1,20	CONTRACTUAL REQUIREMENTS				
1.2.1	Provision of Sureties	Sum	1		
1.2.2	Insurances	Sum	1		
1.2.3	Third Party Insurance	Sum	1		
1.2.4	Guarantee of the Works	Sum	1		
1.2.5	Provide Test Results	Sum	1		
1.2.6	Provision of Record Drawings	Sum	1		
1.2.7	All OHSA Requirements including safety equipment and clothing	Sum	1		
1.2.8	All HIV / AIDS Specification Requirements	Sum	1		
1.2.9	**Other Value Related Obligations**	Sum	1		
	(Please Specify).	Sum	1		
	. . . . .	Sum	1		
1,30	TIME-RELATED ITEMS		1		
1.3.1	Contractual Requirements	Sum	1		
1.3.2	Operation and Maintenance of Site Establishment	Sum	1		
1.3.3	Supervision for the Duration of Contract	Sum	1		
1.3.4	**Other Time-Related Obligations**	Sum	1		
	(Please Specify).	Sum	1		
	. . . . .	Sum	1		
	TOTAL SCHEDULE NO. 1 TO PRICE SUMMARY				

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB

ELECTRICAL INSTALLATIONS

BILL NO. 2 : REMOVAL OF EXISTING INSTALLATIONS AND ENABLING WORKS

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
2.1	Remove existing Luminaires				
	Remove existing luminaires including associated wiring, switches, conduits, etc				
2.1.1	Bulkhead lumianire	Each	6		
2.1.2	Fluorescent luminaire (1 or 2 or 3 chanel) surface/recessed into ceiling	Each	3		
2,2	Remove existing switch covers				
	Remove existing switch including associated wiring, screws, etc.				
2.2.1	Single to three lever switch	Each	4		
2,3	Remove existing Socket Outlets and Double Pole isolators				
	Remove existing Socket Outlets and Double Pole isolators including associated wiring, conduits, etc				
2.3.1	Double or Single switched socket outlet	Each	6		
2,4	Double pole isolator	Each	1		
	Other work related to decanting of electrical and ICT existing installations. This work to be instructed by the engineer				
2.4.1	Electrician	Hrs	16		
2.4.2	semiskilled	Hrs	16		
	TOTAL SCHEDULE NO. 2 TO PRICE SUMMARY				

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB

ELECTRICAL INSTALLATIONS

BILL NO. 3 : DISTRIBUTION BOARDS & Cabling

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
3,1	**Distrubution Board** Flush and surface mounted Distribution Boards fitted into frames and Trays with Doors to Specification and drawings.				
3.1.1	**Guard House:** DB-GH				
	Supply	each	1		
	Install	each	1		
3.1.2	**Refuse:** DB-REFUSE				
	Supply	each	1		
	Install	each	1		
3.1.3	**EMS:** MDB-EMS				
	Supply	each	1		
	Install	each	1		
3.1.3	**REHAB:** DB-REHAB				
	Supply	each	1		
	Install	each	1		
3,2	**Cables** PVC Insulated PVC bedded SWA PVC sheathed 600/1000V copper cables. drawn into building entry sleeve, mounted on Tray or Wire Basket.. Tenderer to allow addition suitable earth conductor for the cable				
3.2.1	25mm² 4 Core complete with ECC				
	Supply	m	150		
	Install	m	150		
3.2.1.1	Termination for 25mm² 4 core cable complete with ECC				
	Supply	m	150		
	Install	m	150		
3.2.2	10mm² 4 Core complete with ECC				
	Supply	m	150		
	Install	m	150		
3.2.2.1	Termination for 10mm² 4 core cable complete with ECC				
	Supply	each	4		
	Install	each	4		
3.2.3	4mm² 4 Core complete with ECC				
	Supply	m	200		
	Install	m	200		
3.2.3.1	Termination for 4mm² 4 core cable complete with ECC				
	Supply	each	10		
	Install	each	10		
3.2.4	6mm² 4 Core complete with ECC				
	Supply	m	150		
	Install	m	150		
3.2.4.1	Termination for 6mm² 4 core cable complete with ECC				
	Supply	each	2		
	Install	each	2		
3.2.5	6mm² 2 Core complete with ECC				
	Supply	m	280		
	Install	m	280		
3.2.5.1	Termination for 4mm² 2 core cable	each	4		
	TOTAL SCHEDULE NO. 3 TO PRICE SUMMARY				

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB

ELECTRICAL INSTALLATIONS

BILL NO. 4 : LUMINAIRES

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
4,1	**Luminaires** Luminaires mounted on concrete or suspended ceilings, or on brickwork, or on pole including lamps and fixing material. This section to read in line with Detailed Specification and lighting layout.				
4.1.1	Type-A				
	Supply	each	13		
	Install	each	13		
4.1.2	Type-N				
	Supply	each	36		
	Install	each	36		
4.1.3	Type-JS				
	Supply	each	39		
	Install	each	39		
4.1.4	Type-JSE				
	Supply	each	9		
	Install	each	9		
4.1.5	Type-Z				
	Supply	each	1		
	Install	each	1		
4.1.6	Type-S				
	Supply	each	6		
	Install (including pole hole excavation)	each	6		
4.1.7	Type-R1				
	Supply	each	1		
	Install	each	1		
4.1.8	Type-EX				
	Supply	each	5		
	Install	each	5		
4.1.9	Type-G1				
	Supply	each	13		
	Install	each	13		
4.1.10	**Type EL** - Examination Light(Ceiling mounted)See lighting schedule in detailed specification for information				
	Supply	No.	4		
	Install	No.	4		
	TOTAL SCHEDULE NO. 4 TO PRICE SUMMARY				

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB

ELECTRICAL INSTALLATIONS

BILL NO. 5 : SWITCHGEAR EQUIPMENT

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
5,1	**Switchgear** 16 Amp rocker type light switch with coverplate installed into a flush box measured elsewhere.				
5.1.1	Single lever, one way				
	Supply	each	15		
	Install	each	15		
5.1.2	Double lever, one way				
	Supply	each	2		
	Install	each	2		
5.1.3	10 amp photo electric cell surface mounted in an empty luminaire				
	Supply	each	4		
	Install	each	4		
5.1.4	One lever, one way (water tight switch)				
	Supply	each	6		
	Install	each	6		
5.1.5	Double lever, Two way				
	Supply	each	2		
	Install	each	2		
5,2	**Switchgear** 16 Amp rocker type Power Outlets with coverplate installed into boxes orPower Skirting which are measured elsewhere.				
5.2.1	16 Amp 3 pin dedicated switched socket outlets with cover plates installed in a **flush wall Box**. Colour: WHITE				
	Supply	each	21		
	Install	each	21		
5.2.2	16 Amp 3 pin dedicated switched socket outlets with cover plates installed in a **flush wall Box**. Colour: RED				
	Supply	each	8		
	Install	each	8		
5.2.3	16 Amp 3 pin ceiling mounted switched socket outlets. The price to include the **surface mounting box** and its accessories. Colour: RED				
	Supply	each	8		
	Install	each	8		
5.2.4	16 Amp 3 pin standard switched socket outlets with cover plates and craddles installed in **power skirting**. Colour: White				
	Supply	each	15		
	Install	each	15		
5.2.5	16 Amp 3 pin dedicated switched socket outlets with cover plates and craddles installed in a **power skirting**. Colour: RED				
	Supply	each	30		
	Install	each	30		
5.2.7	16 Amp 3 pin Euro switched socket outlets with cover plates and craddles installed in a **power skirting**. Colour: White				
	Supply	each	15		
	Install	each	15		
5.3	**ISOLATORS FOR HVAC AND VENTILATION**				
	Supply and install complete Air conditioning points including all cables, isolators and associated equipment.				
5.3.1	20 Amp indoor wall/ceiling mounted 2-pole isolator.	Nº	5		
5.3.2	20 Amp Outdoor wall mounted 2-pole isolator.	Nº	14		
	TOTAL SCHEDULE NO. 5 TO PRICE SUMMARY				

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB

ELECTRICAL INSTALLATIONS

BILL NO. 6 : GENERAL POWER

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
6.1	**Conduit**				
	PVC conduit chased into brickwork, cast in concrete or fixed on trusses in ceiling void including cutting, bending, reaming, setting, joining, draw boxes and fixing material (average).				
6.1.1	20mm				
	Supply	m	4 500		
	Install	m	4 500		
6.1.2	25mm				
	Supply	m	300		
	Install	m	300		
6,2	Galvanised metal conduit chased into brickwork, cast in concrete or fixed on trusses in ceiling void including cutting, bending, reaming, setting, joining, draw boxes and fixing material (average).				
6.2.1	20mm				
	Supply	m	320		
	Install	m	320		
6.2.2	25mm				
	Supply	m	94		
	Install	m	94		
6,3	**Conduit Boxes**				
	Round Galvanised box for 20mm conduit, back or side entry for 1, 2, 3 or 4-way chased into brickwork, cast into concrete or fixed in trusses including couplings bushes cover plates and fixing materials (average rate)				
6.3.1	20mm Galv round box				
	Supply	each	120		
	Install	each	120		
6.3.2	25mm Galv round box				
	Supply	each	70		
	Install	each	70		
6,4	Galv boxes with 20mm knockouts as specified chased into brickwork.				
6.4.1	100mm x 50mm x 50mm				
	Supply	each	85		
	Install	each	85		
6.4.2	100mm x 100mm x 50mm				
	Supply	each	106		
	Install	each	106		
	TOTAL SCHEDULE NO. 6 TO PRICE SUMMARY				

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB

ELECTRICAL INSTALLATIONS

BILL NO. 7 : CONDUCTORS

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
7,1	**Conductors** **600/1000 grade PVC insulated single core copper conductors drawn into conduit**				
7.1.1	1,5mm² red/black				
	Supply	m	6 445		
	Install	m	6 445		
7.1.2	2,5mm² red/black				
	Supply	m	4 990		
	Install	m	4 990		
7.1.3	2,5mm² yelow & green				
	Supply	m	5 718		
	Install	m	5 718		
7.1.4	2,5mm² surffix cable				
	Supply	m	150		
	Install	m	150		
7.1.5	4mm² surffix cable				
	Supply	m	100		
	Install	m	100		
TOTAL SCHEDULE NO. 7 TO PRICE SUMMARY					

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB

ELECTRICAL INSTALLATIONS

BILL NO 8 : POWER RETICULATION EQUIPMENT

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
8,0	**WIRING DUCT**				
8.1	50mm PVC sleeve				
	Supply	m	200		
	Install	m	200		
8.2	32mm PVC sleeve				
	Supply	m	80		
	Install	m	80		
8.3	**POWER SKIRTING**				
8.3.1	Fixed on walls powerskirting , complete with covers				
	Supply	m	80		
	Install	m	80		
8.3.2	Endcap				
	Supply	each	24		
	Install	each	24		
8.3.3	Tee bend				
	Supply	each	1		
	Install	each	1		
8.3.4	**Telephone**				
8.3.4.1	Telephone RJ11 outlet mounted to power skirting complete with cover plate				
	Supply and Install	each	15		
8.3.5	**Data**				
8.3.5.1	Data RJ45 outlet mounted to power skirting complete with cover plate				
	Supply and Install	each	15		
8.4	P800 galvanised wiring duct including covers, hangers and splices.				
	Supply	m	150		
	Install	m	150		
8.4.1	External elbow				
	Supply	each	4		
	Install	each	4		
8.4.2	Tee radiused				
	Supply	each	3		
	Install	each	3		
8.4.3	Endcap				
	Supply	each	2		
	Install	each	2		
8.5	**Cable Tray**				
	300mm wide wiremash Galvanised Cable tray installed on side mounted angle Brackets.(Medium Duty Cable Tray)				
8.5.1	Cable Tray				
	Supply	m	150		
	Install	m	150		
8.5.2	90 bend				
	Supply	m	4		
	Install	m	4		
8.5.3	Tee radiused				
	Supply	each	2		
	Install	each	2		
	TOTAL SCHEDULE NO. 8 TO PRICE SUMMARY				

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB

ELECTRICAL INSTALLATIONS

BILL NO 9 :EXCAVATIONS

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
9.1	Excavations for cables in trenches (450 wide x 600deep)				
9.1.1	Excavate in normal earth	m³	52		
9.1.2	Allow for Soft Rock in above trench	m³	14		
9.1.3	Allow for Hard Rock in above trench	m³	5		
9.1.4	Selected fines bedding 150mm under cable and 150mm on top of cable	m³	52		
9.1.5	Removal of unsuitable material	m³	15		
9.1.6	Supply and install cable marker tape 200mm above cable in trench	m	100		
	TOTAL SCHEDULE NO. 9 TO PRICE SUMMARY				

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB

ELECTRICAL INSTALLATIONS

BILL NO 10 :ACCESS CONTROL

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
10.1	**Turnstile**				
10.1.1	CAT 6 Cable				
	Supply	m	100		
	Install	m	100		
10.1.2	Single turnstile: four arm, full height, bi-directional single turnstile - Hot dipped galvanised and polyester exterior grade powder coat				
	Supply and Install	No	1		
10.1.3	Remote control receiver without power supply (no power supply required for turnstile installation)	No	1		
10.1.4	Remote control transmitter - three button -	No	1		
10.1.5	Set of two batteries - 12V 7aH with connection leads -	No	1		
10.1.6	Single pushbutton in steel box - Hot dipped galvanised and polyester exterior grade powder coat	No	1		
	TOTAL SCHEDULE NO. 10 TO PRICE SUMMARY				

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB

ELECTRICAL INSTALLATIONS

BILL NO 11 :SUNDRY ITEMS

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
11.1	Housekeeping, sundry items, consumable stocks such as circuit beads engraving, labels etc.	Sum	1		
11.2	Testing of complete installation in terms of the regulations	Sum	5		
11.3	Provide for the earthing and bonding of the new buildings to wiring code	Sum	3		
11.4	Provide Certificate of Compliance for the new works	Sum	1		
11.5	Provide As-built drawing for the new works	Sum	1		
11.6	**Lightning Protection**				
11.6.1	Allow for specialist subcontractor to carry out the lightning protection installation for all buildings including assessment of soil condition. The specialist to provide reports and design of the system to the Engineer for approval prior to installation. The price to include testing and compliance certificates	Prov Sum	1		
11.7	Heavy Duty Gate Motor including installation	No	1		
TOTAL SCHEDULE NO. 11 TO PRICE SUMMARY					

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB

ELECTRICAL INSTALLATION
SUMMARY OF MAIN BILL

DESCRIPTION	TENDER AMOUNT
BILL NO. 1 : P&G'S	
BILL NO. 2 : REMOVAL OF EXISTING INSTALLATIONS AND ENABLING WORKS	
BILL NO. 3 : DISTRIBUTION BOARDS & CABLING	
BILL NO. 4 : LUMINAIRES	
BILL NO. 5 : SWITCHGEAR EQUIPMENT	
BILL NO. 6 : GENERAL POWER	
BILL NO. 7 : CONDUCTORS	
BILL NO 8 : POWER RETICULATION EQUIPMENT	
BILL NO. 9 : EXCAVATIONS	
BILL NO 10 : ACCESS CONTROL	
BILL NO. 11 : SUNDRY ITEMS	
SUBTOTAL	
10% Contingency	
Total Excluding VAT	
15% VAT	
Total including VAT to Form of Offer	

REMINDER NOTE

The Total Price including Main Contractor's Mark-up which excludes VAT, must be carried over to the final summary in Volume 1 and all fixed amounts shown in the price schedule must be included therein. No adjustments will be made for any failure by Tenderers to include the fixed amounts in the Total Price for this particular installation.

SUB-CONTRACTOR'S NAME: .....

DATE: .....

SIGNATURE: .....

N.B. The above-named Sub-Contractor is to be employed on this contract. Substitute Sub-Contractors are not acceptable.

The price submitted include all Main Contractor's 'Profit and Mark up BUT Exclude the VAT when transferring price to Volume 1 of the Final Summary Total of the Main Contractor's Document

PROJECT TITLE:	**UPGRADE & ADDITIONS TO EXISTING BUILDING EMS, GATE HOUSE, REFUSE AND REHAB AT MOTHERWELL CHC– ELECTRICAL INSTALLATIONS**

SCHEDULE OF MATERIAL OFFERED

Bidders are required to enter, at the time of bidding, in this material offered, sufficient details to enable the equipment concerned to be identified without ambiguity.

It is not sufficient for a tender to state “as specified” in the schedules.

FAILURE TO COMPLETE THESE SCHEDULES (IF APPLICABLE) MAY RENDER A BID INVALID.

ITEM	EQUIPMENT	MAKE	MANUFACTURE

NAME OF TENDER : ……

NAME OF COMPANY : ……

SIGNATURE OF TENDERER : ……

PROJECT TITLE:	UPGRADE & ADDITIONS TO EXISTING BUILDING EMS, GATE HOUSE, REFUSE AND REHAB AT MOTHERWELL CHC– ELECTRICAL INSTALLATIONS

PARTICULAR SPECIFICATIONS

LIGHT SWITCHES

1. GENERAL

This section covers the requirements for switches for use in general installations under normal environmental conditions.

2 FLUSH AND SURFACE MOUNTED SWITCHES

2.1 All switches shall be suitable for mounting in 100 x 50 x 50mm boxes shall comply with SANS 1663 and shall bear the SANS mark.
2.2 Switches shall be of tumbler operated microgap type rated at 16A, 220/250V.
2.3 Switches shall have protected terminals for safe wiring.
2.4 Contacts shall be of silver material.
2.5 On multi-lever switches, it shall be possible to individually change any of its switches.
2.6 The yoke strap shall be slotted to allow for easy alignment.
2.7 The covers of surface mounted switches shall have toggle protectors.
2.8 Where light switches are installed in partitions, they shall, where possible, be of the special narrow type intended for installation into the mullions.

3. WATERTIGHT SWITCHES

3.1 Watertight switches shall be of the microgap type suitable for surface mounting and shall bear the SANS mark.
3.2 The housing shall be of galvanised cast iron or die cast aluminium with watertight cover plate and toggle.
3.3 The switch shall have a porcelain base and a quick acting spring mechanism and shall be rated at 16A, 220/250V.
3.4 The ON/OFF position shall be clearly marked on the switch housing.

4. CEILING SWITCHES

4.1 Ceiling switches shall be rated at 10A. 220/250V and shall be suitable for ceiling mounting on a round conduit box.
4.2 The switch shall be made of high impact strength nylon material.
4.3 Adequate space shall be provided within the unit for ease of wiring.

4.4 The switch colour shall be white and shall be fitted with a nylon cord 1.25m long.

5. COVER PLATES

5.1 Cover plates shall be finished in ivory coloured baked enamel, anodised bronze or aluminium unless otherwise specified.
5.2 Cover plates shall overlap the outlet to cover wall imperfections.
5.3 Cover plates shall comply with SANS 1084.

UNSWITCHED AND SWITCHED SOCKET-OUTLETS

1. GENERAL

This section covers the requirements for unswitched and switched socket-outlets for use in general installations under normal environmental conditions.

2. FLUSH AND SURFACE MOUNTED SWITCHED SOCKETS

2.1 All switched socket-outlets shall be suitable for mounting in 100 x 100 x 50mm or 100 x 50 x 50mm boxes, shall comply with SANS 164.
2.2 Switches shall be of the tumbler operated microgap type rated at 16A, 220/250V.
2.3 Terminals shall be enclosed for safe wiring.
2.4 Contacts shall be of silver material.
2.5 Safety shutters shall be provided on live and neutral openings.
2.6 The yoke strap shall be slotted to allow for easy alignment
2.7 The covers of surface mounted switched socket shall have toggle protectors.
2.8 Miniature circuit-breakers shall be used in lieu of a switch where specified.
2.9 Where 13A flat pin switched socket-outlets are specified, these shall comply with BS 1363.

3. WATERTIGHT SWITCHED SOCKETS

3.1 The housing of watertight switched sockets shall be of galvanised cast iron or die cast aluminium with watertight machined joints.
3.2 The switch shall have a porcelain base and a quick-acting spring mechanism and shall be rated at 16A. 220/250V.
3.3 The ON/OFF positions shall be clearly marked on the switch housing.
3.4 The socket openings shall be rendered watertight by means of a gasketed cover plate which is screwed onto the body of the unit. The cover plate shall be secured to the body of the unit by means of a chain.

4. UNSWITCHED SOCKET-OUTLETS

4.1 Unswitched socket-outlets shall only be used in the case of 5A, 220/250V, 3-pin socket-outlets intended for the connection of recessed light fittings installed in false ceilings.
4.2 The socket-outlets shall have shuttered live and neutral openings.
4.3 The socket-outlets shall be suitable for installation in pre-punched wiring channels. deep round conduit boxes, 100 x 50 x 50mm or 100 x 100 x 50mm boxes.

5. THREE-PHASE SWITCHED SOCKET-OUTLETS

5.1 Three-phase switched socket-outlets shall have 5 pins, one for each phase, neutral and earth. The current rating shall be as specified in the Detail Technical Specification.
5.2 The units shall be interlocked to prevent switching on if the plug top is not installed.

5.3 The units shall be supplied complete with plug top.

5.4 The live terminals shall be shrouded and shall be completely safe when the plug top is removed.

5.5 Samples shall be submitted to the Department for approval prior to the installation.

INSTALLATION OF LIGHT SWITCHES AND SOCKET-OUTLETS

1. GENERAL

1.1 STANDARDS

Light switches and socket-outlets shall be surface or flush mounted boxes and cover plates shall be provided.

1.2 POSITION OF OUTLETS

Switches and socket-outlets shall be accurately positioned in accordance with the drawings. It is the Contractor's responsibility to ensure that all outlets are installed level and square, at the correct height from the floor and at the correct position relative to building lines and equipment positions as specified. It is the Contractor's responsibility to determine the correct final floor level and ceiling level in conjunction with the Main Contractor.

1.3 COVER PLATES

All switches and socket-outlets shall be fitted with standard metal cover plates. The colour of cover plates shall be as specified or shall otherwise match the surrounding finishes as closely as possible. Unless specified to the contrary, ivory cover plates shall be installed on painted walls. Cover plates in the same area shall have the same colour. Flush mounted cover plates shall overlap the draw-box and edges of the recess. Cover plates shall under no circumstances be cut unless authorised by the Department.

1.4 ESCUTCHEON PLATES

Where flush mounted switches or socket-outlets are installed in special wall finishes e.g. wood or board panels, acoustic tiles or other cladding, etc. and where the wall finishes must be cut to accommodate the switch, it may be necessary to fix an escutcheon plate to the wall to cover the cut-outs. The escutcheon plate shall fit closely around the outlet boxes and shall be fixed independently of the boxes and cover plates. Bevelled cover plates shall be fixed to the outlet boxes and shall fit firmly against the escutcheon plate.

1.5 APPEARANCE

The sides of adjacent switches, plugs, push-buttons etc. shall be parallel or perpendicular to each other and uniformly spaced. A common escutcheon plate shall be placed around flush mounted outlets and accessories where the standard cover plates do not cover the cut-outs in the finishes.

1.6 DEEP BOXES

Where switch or socket-outlet boxes have been set deep, spiral type steel wire spacers shall be used to fix the yoke of the switch or socket.

2. INSTALLATION OF SOCKET-OUTLETS

2.1 MOUNTING HEIGHT

Unless specified to the contrary, socket-outlets shall be installed at the following heights above finished floor level, measured to the centre of the outlet:

Flush mounted in general:	300mm
Showrooms, shops, servants quarters:	1,4m
Domestic kitchens, tea kitchens:	1,05m
Commercial kitchens:	1,4m
Factories, workshops, garages:	1,4m

2.2 WALLS

In cases where socket-outlets must be mounted at a nominal height of 300mm and where the lower portion of the wall consists of face bricks and the upper portion is plastered, the outlets shall be installed in the plastered portion of the wall. If however the plastered portion of the wall commences 500mm or more above floor level the outlets shall be installed in the face bricks. Where a wall has different surface finishes the outlets shall be installed within the same finish and not in the dividing lines between the different wall finishes. All outlets shall be installed at least 150mm away from door frames.

3. INSTALLATION OF LIGHT SWITCHES

3.1 MOUNTING

Light switches shall be installed 1,4m above finished floor level unless specified to the contrary. Mounting heights given shall be measured from the finished floor level to the centre of the switch. All single switches shall be installed with the long side of the toggle vertical.

3.2 DOORS

Unless specified to the contrary, switches adjacent to doors shall be installed on the side containing the lock. If the position of the lock is not shown on the drawings, the position shall be verified before the switch-box is installed. Switch boxes in brick or concrete walls shall be installed 150mm from the door frame. Light switches installed in partitions or door frames shall be of the type designed for that purpose.

3.3 WALLS

Where the lower portion of a wall is face brick and the upper portion plastered, light switches shall be installed wholly in the plaster provided that the lower edge of the plaster is not higher than 1,6m above the finished floor level. In general where different wall finishes are used in the same area. Switches shall be installed within the same finish and not on the dividing lines between finishes.

3.4 PARTITIONS

Light switches installed in partitions shall preferably be of the type designed to be accommodated in the partition construction. Switches installed in the metal supports do not require switch boxes. Switches may not be flush mounted in partition walls without switch boxes.

3.5 WATERTIGHT SWITCHES

Switches that are exposed to the weather or are installed in damp areas, shall be of the watertight type.

3.6 MULTIPLE SWITCHES

Where several switches are required in one position, multi-lever switches in a common switch box shall be provided wherever possible. All circuits wired into this box shall be on the same phase in order that voltages in excess of 250 V are not present in the box. Where it is not possible or practical to do this, barriers shall be installed and a label shall be prominently displayed within the box stating that voltages in excess of 250 V are present.

PROJECT TITLE:	**UPGRADE & ADDITIONS TO EXISTING BUILDING EMS, GATE HOUSE, REFUSE AND REHAB AT MOTHERWELL CHC– ELECTRICAL INSTALLATIONS**

SCHEDULE OF TENDER DRAWINGS

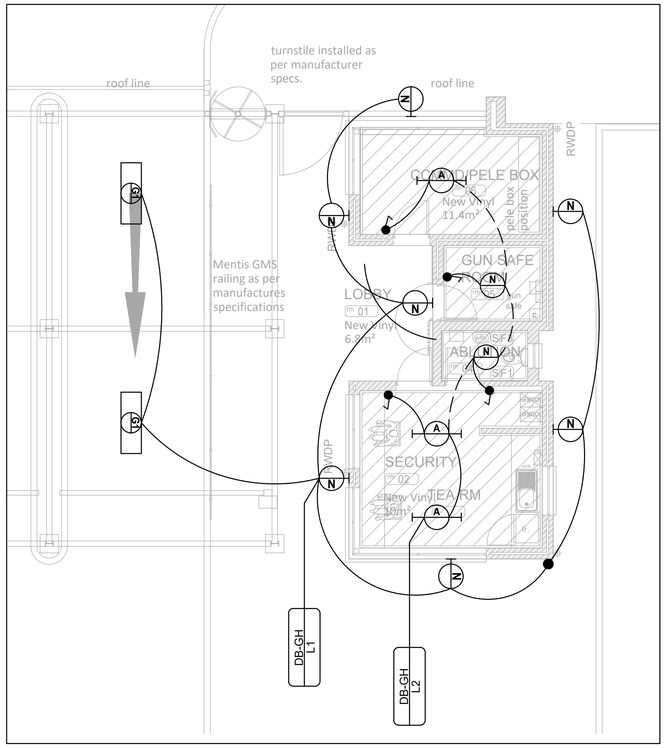
Drawing No.	Rev	Qty	Description	Size
2303-T-E-101 MW	Rev00	1	Lighting Layout	A1
2303-T-E-102 MW	Rev00	1	Power Layout	A1
2303-T-E-101 MWRH	Rev00	1	Lighting Layout	A1
2303-T-E-102 MWRH	Rev00	1	Power Layout	A1

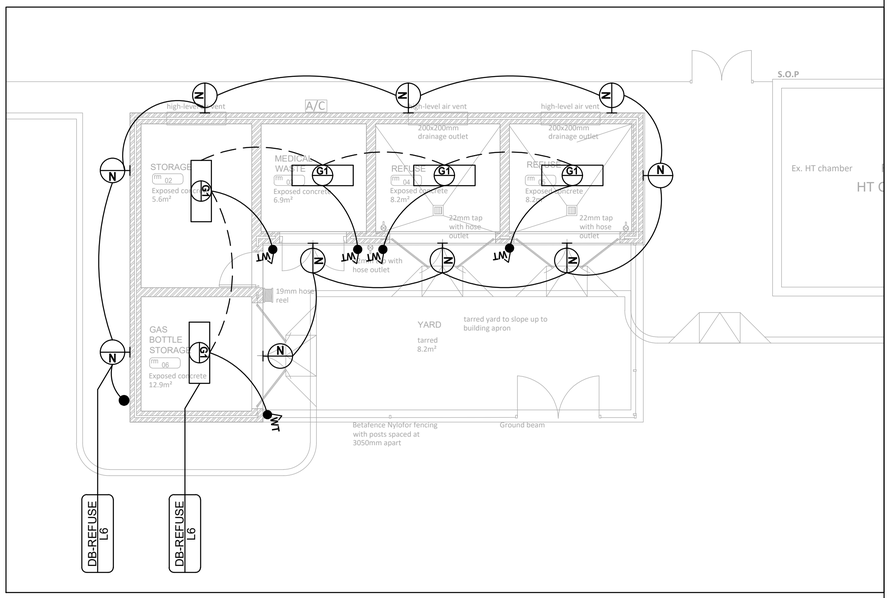
NAME OF TENDER : ……

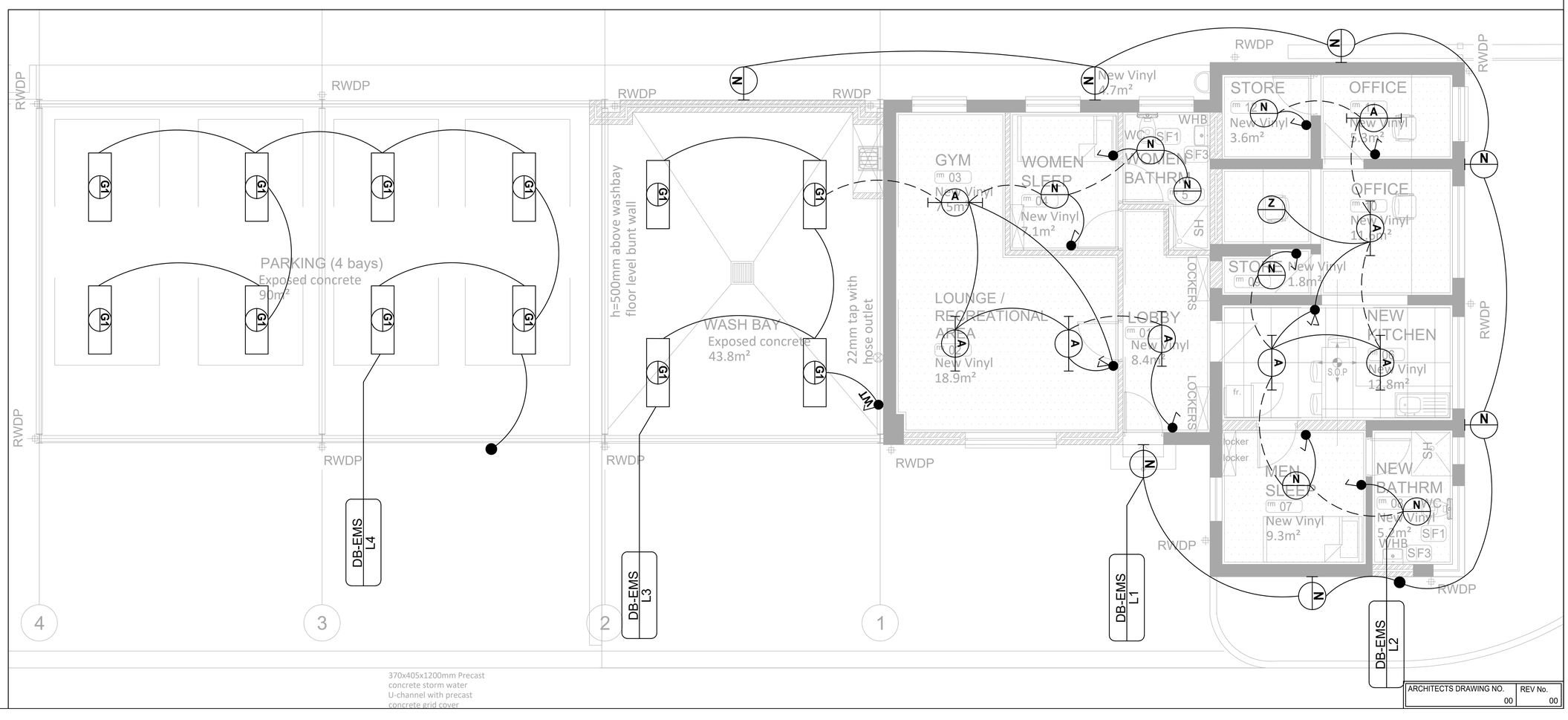
NAME OF COMPANY : ……

SIGNATURE OF TENDERER : ……

	LIGHTING LEGEND
	PHOTO CELL
	1 LEVER - 1 WAY - LIGHT SWITCH
WT	**1 LEVER - 1 WAY - WATER TIGHT LIGHT SWITCH**
	DIMMER SWITCH (TRAILING EDGE)
	MOTION SENSOR
	2 LEVER - 1 WAY - LIGHT SWITCH
Z	11W LED RECESSED DOWNLIGHTER(96mm DIAMETER)
GB	40W LED RECESSED MOUNTED LUMINAIRE (600mm X 600mm)
GB E	40W LED RECESSED MOUNTED LUMINAIRE WITH 1 HOUR EMEGENCY BACK-UP (600mm X 600mm)
EX	MAINTAINED EMERGENCY LIGHTING EXIT SIGN
	ELECTRICAL DISTRIBUTION BOARD
AC	100x100x50 CONDUIT BOX FOR AC REMOTE CONTROL WITH A 25mm CONDUIT INTO THE CEILING VOID.
A	44W LED SURFACE MOUNTED LINEAR LUMINAIRE WITH POLYCARBONATE DIFUSSER. 1450mm LONG.
B N	20W LED OUTDOOR DOMESTIC TYPE DECORATIVE CEILING / WALL MOUNTED BULKHEAD.
VP	VAPOUR PROOF 52W LED LUMINAIRE







GENERAL NOTES:

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE DETAILED SPECIFICATIONS.
2. DO NOT SCALE LENGTHS OF SLEEVE, CABLES ETC FROM DRAWINGS .
3. A COMPLETE SET OF DRAWINGS MUST BE AVAILABLE ON SITE AT ALL TIMES.
4. FOR WIRING CONDUCTOR SIZES, REFER TO DB SCHEMATIC DIAGRAMS.
5. CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
6. SEE DETAILED SPECIFICATION FOR MOUNTING HEIGHTS OF SWITCHES, SWITCH SOCKET OUTLETS, ETC.
7. NON-CORRODING DRAW WIRE / STRING TO BE INSTALLED IN ALL SPARE SLEEVES, TELEPHONE AND DATA CABLE CONDUITS AND SLEEVES.
8. DISCREPANCIES, ERRORS AND OMISSIONS ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY THEY BECOME EVIDENT.
9. ALLOW 4 X 20mmØ & 4 x 25mmØ SPARE CONDUITS FROM EACH DB TO CEILING VOIDS. (FLUSH MOUNTED DB's)
10. IF NOT MEASURED IN THE BILL OF QUANTITIES, TELEPHONE AND DATA SOCKETS SHALL BE SUPPLIED AND INSTALLED BY OTHERS.
11. TELEPHONE AND DATA CONDUITS TO BE 25 Ø mm UNLESS INDICATED DIFFERENTLY ON DRAWINGS.
12. IF NOT INDICATED ON DRAWINGS, IN RADIO ROOMS, KITCHENS AND WORK AREA, POWER SKIRTING OR WIRING CHANNELS TO BE ABOVE WORK TOP OR 1200mm A.F.F.L.
13. CIRCUITING:
    - AC = AIR CONDITIONING
    - D = DEDICATED SSO
    - L = LIGHTING CIRCUIT
    - P = STANDARD SSO
    - XL = LIGHTING CIRCUIT ON STANDBY POWER
    - XP = STANDARD SSO ON STANDBY POWER
14. DB DUCTS TO HAVE RISING CABLE TRAYS AS FOLLOWS:
    - 1x300mm WIDE FOR TELEPHONE, DATA AND FIRE DETECTION CABLES.
    - 1x200mm WIDE FOR POWER CABLES (MINIMUM).
15. ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.
16. AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS

REV	DATE	INIT.	DESCRIPTION
00	18-02-24	E.C.	ISSUED FOR TENDER.

CLIENT

Province of the EASTERN CAPE HEALTH

PROJECT

ALTERATIONS AND ADDITIONS AT MOTHERWELL CHC, GQEBERHA

TITLE

EMS,GATE HOUSE AND REFUSE - LIGHTING LAYOUT

RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers

87 Heugh Road, Walmer, Port Elizabeth, 6070
E-Mail: rna-pe@rnzuza.co.za

P.O. Box 35039, Newton Park, 6055
Tel: 041 581 2807
Fax: 041 581 2808

CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
	✓	

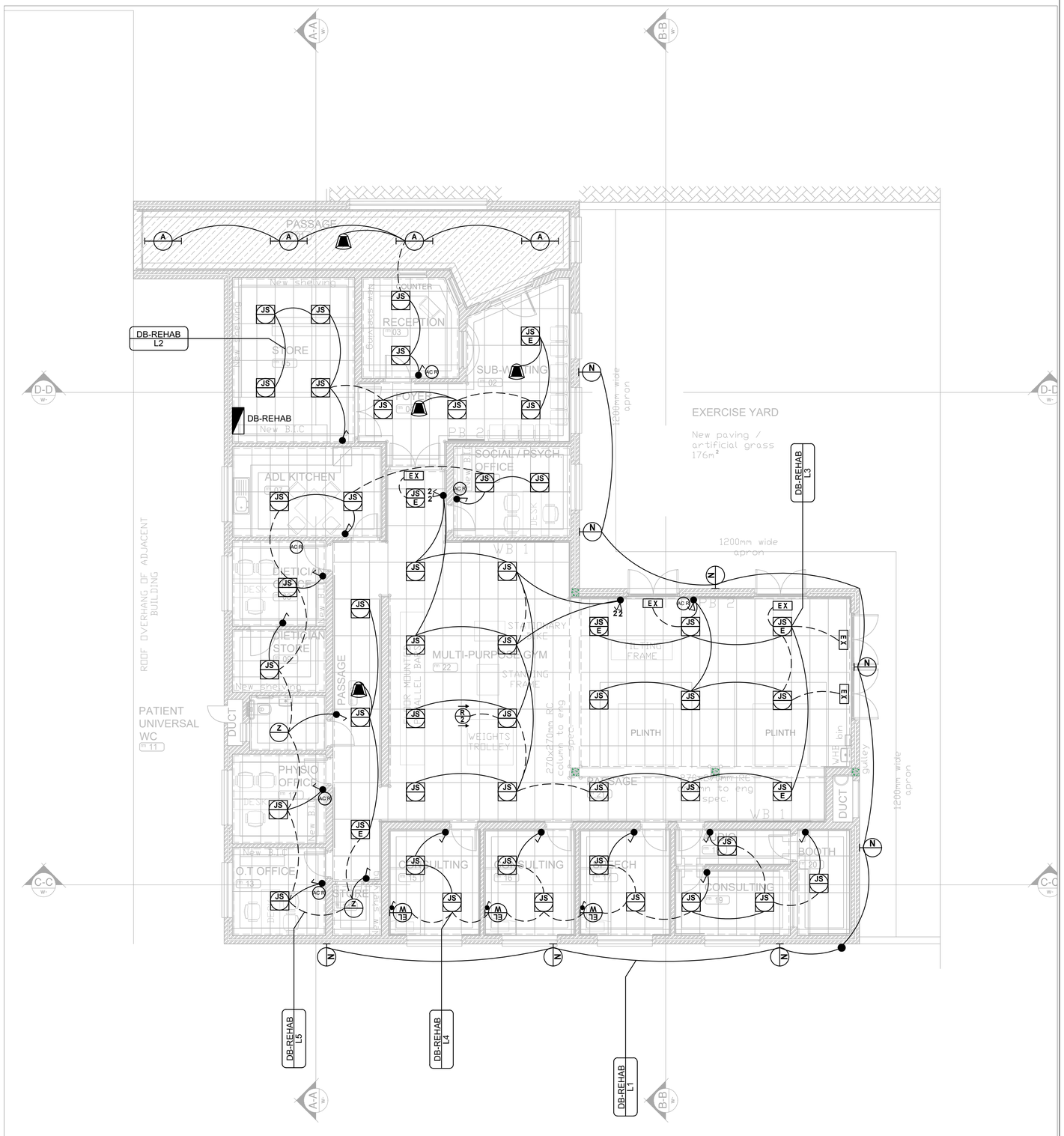
DESIGNED BY: B.GEELBOOI		SCALE 1 :100
DRAWN B.GEELBOOI	DATE 24/04/2023	PRINT DATE 20/02/2024

CHECKED BY: E. CEBA
REGISTRATION No. 201930053
SIGNED.

DRAWING NO.	REV No.
2303-T-E-101 MW	00

ARCHITECTS DRAWING NO.	REV No.
00	00

LIGHTING LEGEND	
●	PHOTO CELL
	1 LEVER - 1 WAY - LIGHT SWITCH
	DIMMER SWITCH (TRAILING EDGE)
	MOTION SENSOR
	2 LEVER - 1 WAY - LIGHT SWITCH
2 2	2 LEVER - 2 WAY - LIGHT SWITCH
Z	11W LED RECESSED DOWNLIGHTER(96mm DIAMETER)
JS	40W LED RECESSED MOUNTED LUMINAIRE (600mm X 600mm)
JS E	40W LED RECESSED MOUNTED LUMINAIRE WITH 1 HOUR EMEGENCY BACK-UP (600mm X 600mm)
EX	MAINTAINED EMERGENCY LIGHTING EXIT SIGN
R 1	ESCAPE SIGN WITH DIRECTION ARROW ONE WAY (ONE SIDE)
R 1 2	ESCAPE SIGN WITH DIRECTION ARROW ONE WAY (BOTH SIDE)
R 2 1 2	ESCAPE SIGN WITH DIRECTION ARROW TWO WAY (BOTH SIDE)
	ELECTRICAL DISTRIBUTION BOARD
AC/R	100x100x50 CONDUIT BOX FOR AC REMOTE CONTROL WITH A 25mm CONDUIT INTO THE CEILING VOID.
EL W	WALL MOUNTED LED EXAMINATION LIGHT WITH BUILT IN SWITCH
A	44W LED SURFACE MOUNTED LINEAR LUMINAIRE WITH POLYCARBONATE DIFUSSER. 1450mm LONG.
N N	20W LED OUTDOOR DOMESTIC TYPE DECORATIVE CEILING / WALL MOUNTED BULKHEAD.



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5. CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
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8. DISCREPANCIES, ERRORS AND OMISSIONS ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY THEY BECOME EVIDENT.
9. ALLOW 4 X 20mmØ & 4 x 25mmØ SPARE CONDUITS FROM EACH DB TO CEILING VOIDS. (FLUSH MOUNTED DB's)
10. IF NOT MEASURED IN THE BILL OF QUANTITIES, TELEPHONE AND DATA SOCKETS SHALL BE SUPPLIED AND INSTALLED BY OTHERS.
11. TELEPHONE AND DATA CONDUITS TO BE 25 Ø mm UNLESS INDICATED DIFFERENTLY ON DRAWINGS.
12. IF NOT INDICATED ON DRAWINGS, IN RADIO ROOMS, KITCHENS AND WORK AREA, POWER SKIRTING OR WIRING CHANNELS TO BE ABOVE WORK TOP OR 1200mm A.F.F.L.
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    - AC = AIR CONDITIONING
    - D = DEDICATED SSO
    - L = LIGHTING CIRCUIT
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    - XL = LIGHTING CIRCUIT ON STANDBY POWER
    - XP = STANDARD SSO ON STANDBY POWER
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    - 1x300mm WIDE FOR TELEPHONE, DATA AND FIRE DETECTION CABLES.
    - 1x200mm WIDE FOR POWER CABLES (MINIMUM).
15. ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.
16. AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS			
REV	DATE	INIT.	DESCRIPTION
00	18-02-24	E.C.	ISSUED FOR TENDER.

CLIENT

Province of the EASTERN CAPE HEALTH

PROJECT

ALTERATIONS AND ADDITIONS AT MOTHERWELL CHC, GQEBERHA

TITLE

REHAB - LIGHTING LAYOUT

RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers
87 Heugh Road, Walmer, Port Elizabeth, 6070
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P.O. Box 35039, Newton Park, 6055
Tel: 041 581 2807
Fax: 041 581 2808

CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
	✓	

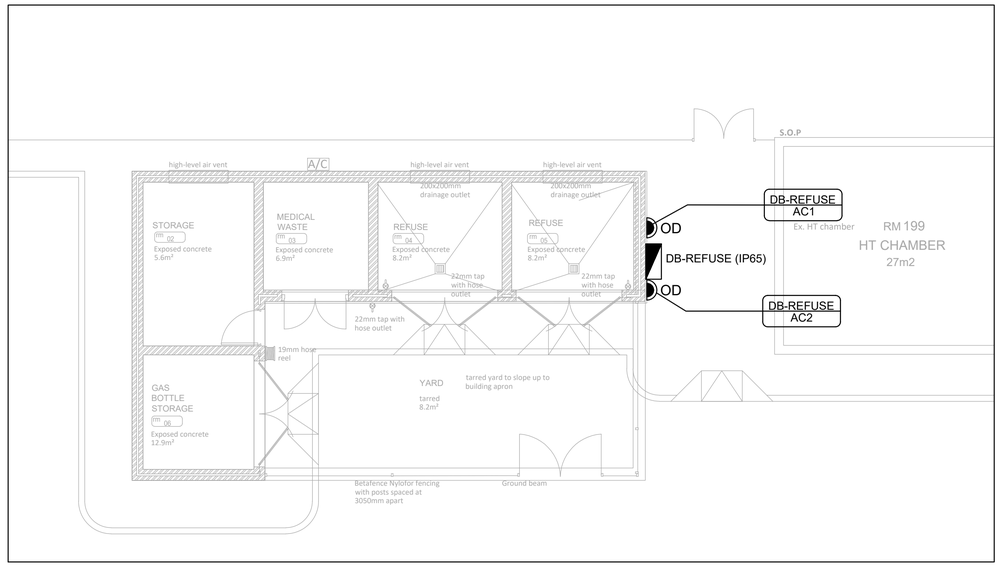
DESIGNED BY: B.GEELBOOI		SCALE 1 :100
DRAWN B.GEELBOOI	DATE 24/04/2023	PRINT DATE 20/02/2024
CHECKED BY: E. CEBA		
REGISTRATION No. 201930053		
SIGNED.		

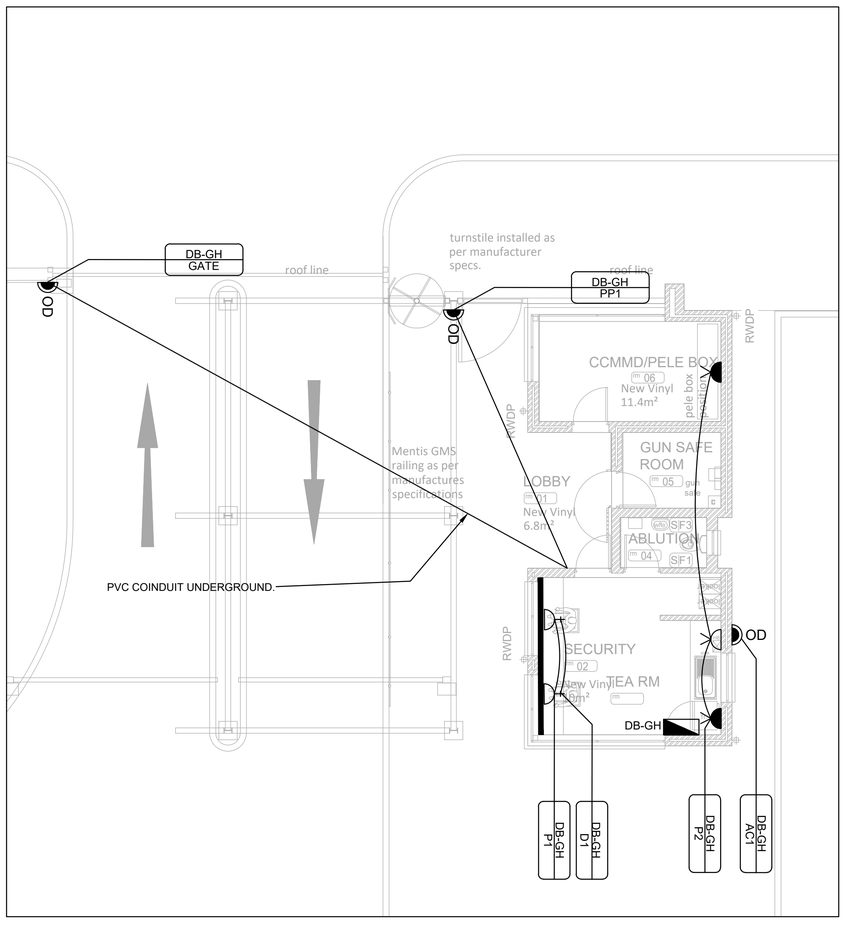
ARCHITECTS DRAWING NO.	REV No.
00	00

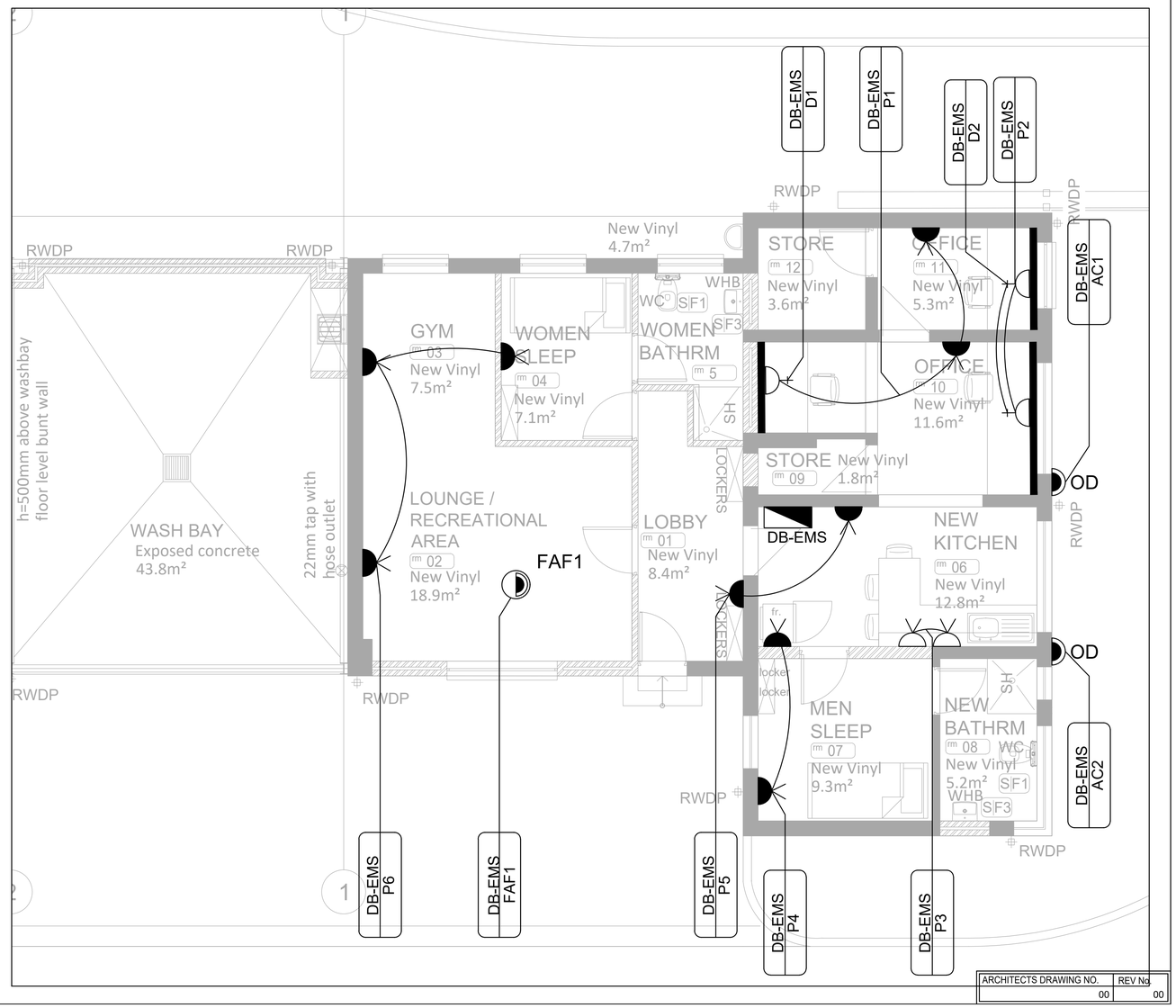
DRAWING NO.	REV No.
2303-T-E-101 MWRH	00

POWER LEGEND

	16A 3 - Pin socket outlet (SANS 164-2) (Essential Supply)
	16A 3 - Pin dedicated switched socket outlet to comply with SANS 164-1 (Red) (Essential Supply)
	16A 3 - Pin switched socket outlet to comply with SANS 164-1 on (White) 450mm AFFL (Normal Supply)
	16A 3 - Pin dedicated switched socket outlet to comply with SANS 164-1 & 2 (Red) (Essential Supply)
	16A 3 - Pin switched socket outlet to comply with SANS 164-1 & 2 (white) 450mm AFFL (Normal Supply)
	16A 3 - Pin switched socket outlet to comply with SANS 164-1 (White) mounted in the ceiling void (Normarl Supply)
	16A 3 - Pin switched socket outlet to comply with SANS 164-1 & 2 (White) 1200mm AFFL OR 300mm ABOVE WORKTOPS (Normal Supply)
	2 Pole isolator (Normal Supply)
OD	2 Pole Outdoor isolator (Normal Supply)
	2 Pole isolator (Normal Supply) mounted in the ceiling void (Essential Supply)
	4 Pole isolator (Normal Supply)
	Data line connection point
	Set of power skirting mounted elements consisting of ( )
	Wall Mounted Box consisting of ( )
	Electrical distribution board
	Power Skirting (2 Compartments).







GENERAL NOTES:

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4. FOR WIRING CONDUCTOR SIZES, REFER TO DB SCHEMATIC DIAGRAMS.
5. CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
6. SEE DETAILED SPECIFICATION FOR MOUNTING HEIGHTS OF SWITCHES, SWITCH SOCKET OUTLETS, ETC.
7. NON-CORRODING DRAW WIRE / STRING TO BE INSTALLED IN ALL SPARE SLEEVES, TELEPHONE AND DATA CABLE CONDUITS AND SLEEVES.
8. DISCREPANCIES, ERRORS AND OMISSIONS ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY THEY BECOME EVIDENT.
9. ALLOW 4 X 20mmØ & 4 x 25mmØ SPARE CONDUITS FROM EACH DB TO CEILING VOIDS. (FLUSH MOUNTED DB's)
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13. CIRCUITING:
    - AC = AIR CONDITIONING
    - D = DEDICATED SSO
    - L = LIGHTING CIRCUIT
    - P = STANDARD SSO
    - XL = LIGHTING CIRCUIT ON STANDBY POWER
    - XP = STANDARD SSO ON STANDBY POWER
14. DB DUCTS TO HAVE RISING CABLE TRAYS AS FOLLOWS:
    - 1x300mm WIDE FOR TELEPHONE, DATA AND FIRE DETECTION CABLES.
    - 1x200mm WIDE FOR POWER CABLES (MINIMUM).
15. ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.
16. AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS

REV	DATE	INIT.	DESCRIPTION
00	07-02-24	E.C.	ISSUED FOR TENDER.

CLIENT

Province of the EASTERN CAPE HEALTH

PROJECT

ALTERATIONS AND ADDITIONS AT MOTHERWELL CHC, GQEBERHA

TITLE

EMS,GATE HOUSE AND REFUSE - POWER LAYOUT

RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers
87 Heugh Road, Walmer, Port Elizabeth, 6070
E-Mail: rna-pe@rnznza.co.za
P.O. Box 35039, Newton Park, 6055
Tel: 041 581 2807
Fax: 041 581 2808

CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY: B.GEELBOOI		SCALE 1 :100
DRAWN B.GEELBOOI	DATE 24/04/2023	PRINT DATE 18/02/2024
CHECKED BY: E. CEBA		
REGISTRATION No. 201930053		
SIGNED.		

ARCHITECTS DRAWING NO.	REV No.
00	00

DRAWING NO.	REV No.
2303-T-E-101 MW	00

POWER LEGEND

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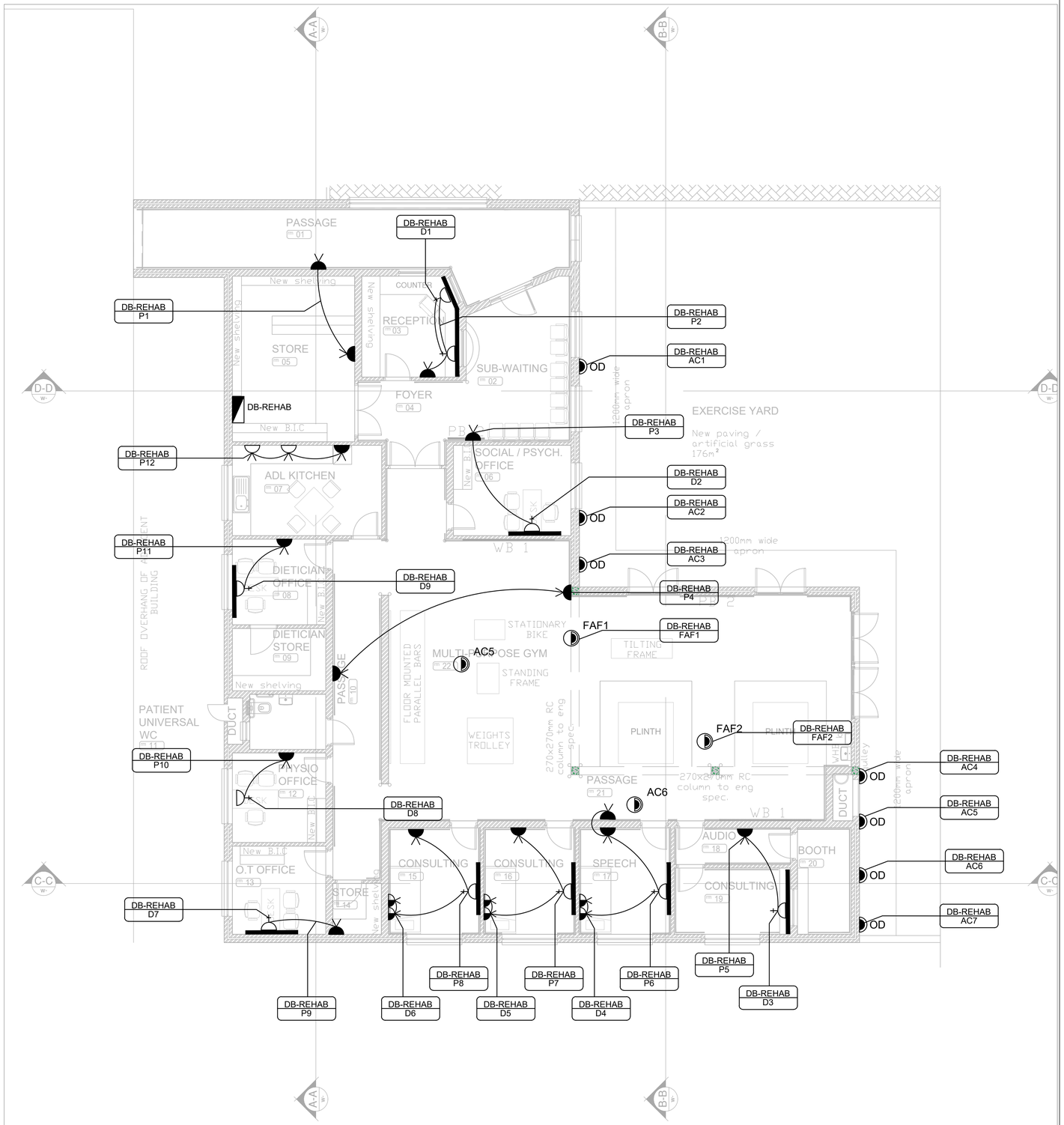
	Power Skirting (2 Compartments).



GENERAL NOTES:

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5. CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
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REVISIONS			
REV	DATE	INIT.	DESCRIPTION
00	18-02-24	E.C.	ISSUED FOR TENDER.

CLIENT

Province of the EASTERN CAPE HEALTH

PROJECT

ALTERATIONS AND ADDITIONS AT MOTHERWELL CHC, GQEBERHA

TITLE

REHAB - POWER LAYOUT

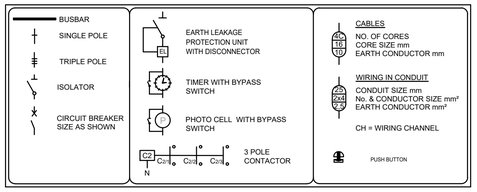
RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers
87 Heugh Road, Walmer, Port Elizabeth, 6070
E-Mail: rna-pe@rnzuza.co.za
P.O. Box 35039, Newton Park, 6055
Tel: 041 581 2807
Fax: 041 581 2808

CESA
Consulting Engineers South Africa

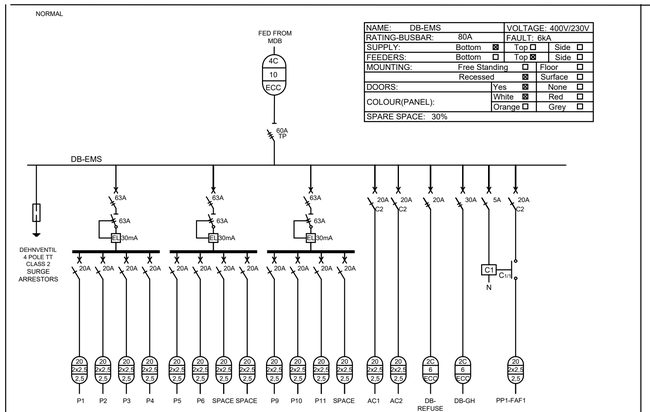
DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY:	B.GEELBOOI
SCALE	1 :100
DRAWN	B.GEELBOOI
DATE	24/04/2023
PRINT DATE	18/02/2024
CHECKED BY:	E. CEBA
REGISTRATION No.	201930053
SIGNED.	
DRAWING NO.	2303-T-E-102 MWRH
REV No.	00
ARCHITECTS DRAWING NO.	00
REV No.	00

LEGEND

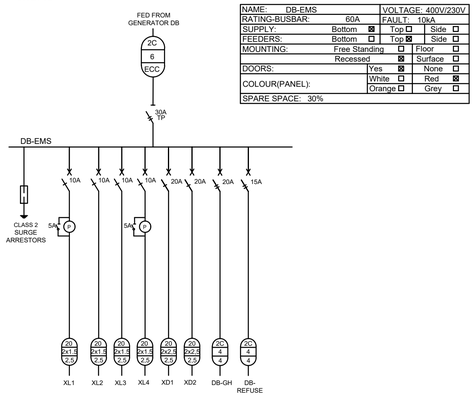


NORMAL



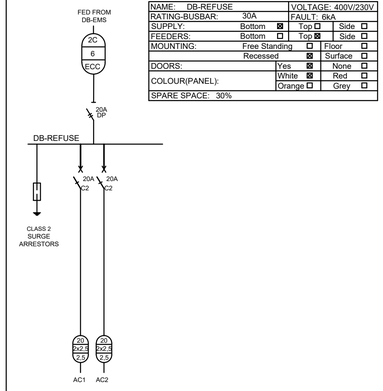
NAME: DB-EMS		VOLTAGE: 400V/230V	
RATING-BUSBAR:	80A	FAULT: 6kA	
SUPPLY:	Bottom ☒	Top ☐	Side ☐
FEEDERS:	Bottom ☐	Top ☒	Side ☐
MOUNTING:	Free Standing ☐	Floor ☐	
	Recessed ☒	Surface ☐	
DOORS:	Yes ☒	None ☐	
COLOUR(PANEL):	White ☒	Red ☐	
	Orange ☐	Grey ☐	
SPARE SPACE: 30%			

ESSENTIAL



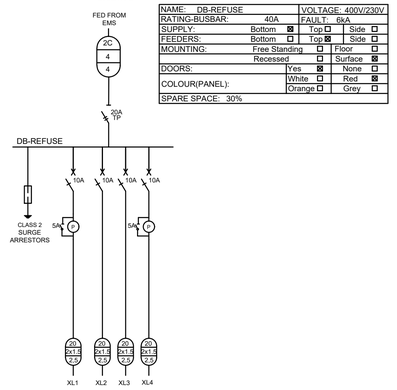
NAME: DB-EMS		VOLTAGE: 400V/230V	
RATING-BUSBAR:	60A	FAULT: 10kA	
SUPPLY:	Bottom ☒	Top ☐	Side ☐
FEEDERS:	Bottom ☐	Top ☒	Side ☐
MOUNTING:	Free Standing ☐	Floor ☐	
	Recessed ☒	Surface ☐	
DOORS:	Yes ☒	None ☐	
COLOUR(PANEL):	White ☐	Red ☒	
	Orange ☐	Grey ☐	
SPARE SPACE: 30%			

NORMAL



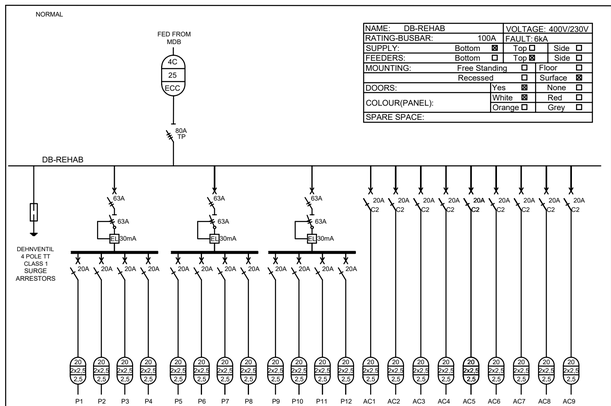
NAME: DB-REFUSE		VOLTAGE: 400V/230V	
RATING-BUSBAR:	30A	FAULT: 6kA	
SUPPLY:	Bottom ☒	Top ☐	Side ☐
FEEDERS:	Bottom ☐	Top ☒	Side ☐
MOUNTING:	Free Standing ☐	Floor ☐	
	Recessed ☒	Surface ☐	
DOORS:	Yes ☒	None ☐	
COLOUR(PANEL):	White ☒	Red ☐	
	Orange ☐	Grey ☐	
SPARE SPACE: 30%			

ESSENTIAL



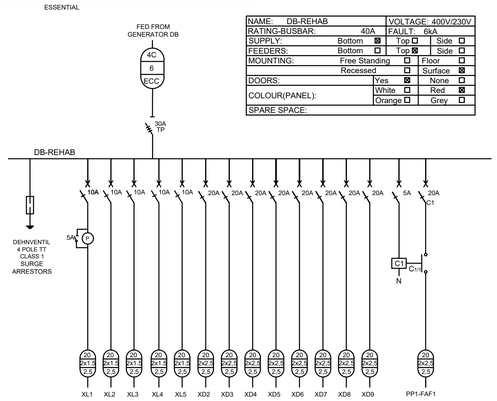
NAME: DB-REFUSE		VOLTAGE: 400V/230V	
RATING-BUSBAR:	40A	FAULT: 6kA	
SUPPLY:	Bottom ☒	Top ☐	Side ☐
FEEDERS:	Bottom ☐	Top ☒	Side ☐
MOUNTING:	Free Standing ☐	Floor ☐	
	Recessed ☐	Surface ☒	
DOORS:	Yes ☒	None ☐	
COLOUR(PANEL):	White ☐	Red ☒	
	Orange ☐	Grey ☐	
SPARE SPACE: 30%			

NORMAL



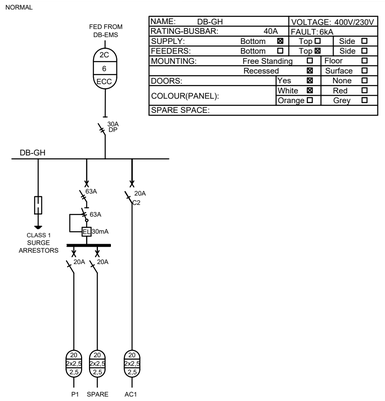
NAME: DB-REHAB		VOLTAGE: 400V/230V	
RATING-BUSBAR:	100A	FAULT: 6kA	
SUPPLY:	Bottom ☒	Top ☐	Side ☐
FEEDERS:	Bottom ☐	Top ☒	Side ☐
MOUNTING:	Free Standing ☐	Floor ☐	
	Recessed ☐	Surface ☒	
DOORS:	Yes ☒	None ☐	
COLOUR(PANEL):	White ☒	Red ☐	
	Orange ☐	Grey ☐	
SPARE SPACE:			

ESSENTIAL



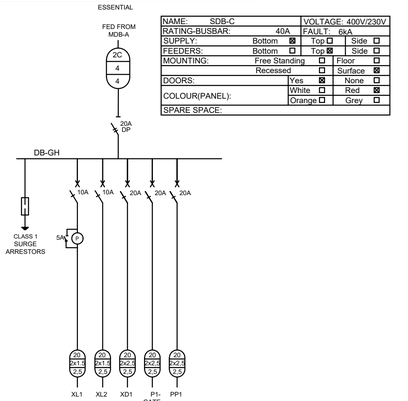
NAME: DB-REHAB		VOLTAGE: 400V/230V	
RATING-BUSBAR:	40A	FAULT: 6kA	
SUPPLY:	Bottom ☒	Top ☐	Side ☐
FEEDERS:	Bottom ☐	Top ☒	Side ☐
MOUNTING:	Free Standing ☐	Floor ☐	
	Recessed ☐	Surface ☒	
DOORS:	Yes ☒	None ☐	
COLOUR(PANEL):	White ☐	Red ☒	
	Orange ☐	Grey ☐	
SPARE SPACE:			

NORMAL



NAME: DB-GH		VOLTAGE: 400V/230V	
RATING-BUSBAR:	40A	FAULT: 6kA	
SUPPLY:	Bottom ☒	Top ☐	Side ☐
FEEDERS:	Bottom ☐	Top ☒	Side ☐
MOUNTING:	Free Standing ☐	Floor ☐	
	Recessed ☐	Surface ☒	
DOORS:	Yes ☒	None ☐	
COLOUR(PANEL):	White ☒	Red ☐	
	Orange ☐	Grey ☐	
SPARE SPACE:			

ESSENTIAL



NAME: SDB-C		VOLTAGE: 400V/230V	
RATING-BUSBAR:	40A	FAULT: 6kA	
SUPPLY:	Bottom ☒	Top ☐	Side ☐
FEEDERS:	Bottom ☐	Top ☒	Side ☐
MOUNTING:	Free Standing ☐	Floor ☐	
	Recessed ☐	Surface ☒	
DOORS:	Yes ☒	None ☐	
COLOUR(PANEL):	White ☐	Red ☒	
	Orange ☐	Grey ☐	
SPARE SPACE:			

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REVISIONS

REV	DATE	INIT.	DESCRIPTION
00	19-02-24	E.C.	ISSUED FOR TENDER.

CLIENT

PROJECT

ALTERATIONS AND ADDITIONS AT MOTHERWELL CHC, GQEBERHA

TITLE

ELECTRICAL:
SCHEMATIC DIAGRAMS

RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers

87 Heugh Road,
Walmer,
Port Elizabeth, 6070
E-Mail: office@rnaconsulteng.co.za

P.O. Box 35039
Newton Park, 6055
Tel: 041 581 2807

CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY: B. GEELBOOI

SCALE: N.T.S

DRAWN: B.GEELBOOI

DATE: 17/10/2023

PRINT DATE: 19/02/2024

CHECKED BY: E. CEBA

REGISTRATION No. 201930053

SIGNED.

ARCHITECTS DRAWING NO. .....

REV No. .....

DRAWING NO. 2303-C-E-300MW

REV No. 00

VOLUME 1.2

ICT INSTALLATION

ICT AND SECURITY INSTALLATIONS

SCHEDULE OF MATERIAL OFFERED

Bidders are required to enter, at the time of bidding, in this material offered, sufficient details to enable the equipment concerned to be identified without ambiguity.

It is not sufficient for a tender to state “as specified” in the schedules.

FAILURE TO COMPLETE THESE SCHEDULES (IF APPLICABLE) MAY RENDER A BID INVALID.

ITEM	EQUIPMENT	MAKE	MANUFACTURE

NAME OF TENDER : ……

NAME OF COMPANY : ……

SIGNATURE OF TENDERER : ……

ICT AND SECURITY INSTALLATIONS

BILLS OF QUANTITIES - NOTES TO TENDERERS

1 All queries will only be answered in writing by the Engineer responsible for the project.

2 The Bills of Quantities form part of and must be read in conjunction with the specification which contains the full description of the work to be done and material and equipment to be used. Unless otherwise described in the Bills of Quantities, reference should be made to the specification for the full meaning of description of work to be done and materials and equipment to be used in this service. Tenderers are requested to check the formulas in the Bills of Quantities and are responsible for the accuracy of their formulas/calculations.

3 The total tender price in the tender form shall constitute the contract price of the successful Tenderer. Tenderers are advised to check their item extensions and total additions, as no claim for arithmetical errors will be considered.

4 No alterations, erasure or addition is to be made in the text of the Schedule of Prices. Should any alteration, erasure or addition be made it will not be recognised but the original wording of the Schedule of Prices will be adhered to.

5 The Priced Bills of Quantities of the successful Tenderer will be checked and the Employer reserves the right to call for adjustments to any individual price and to rectify any discrepancy whilst the total tender price, as submitted, remains unaltered.

6 The responsibility for accuracy of the quantities written into the schedules remains with the person who prepared the schedules. The Tenderer shall be relieved of responsibility of measuring quantities at the tender stage, and the tender sum submitted shall be in respect of the quantities set out in the schedules although he will be required to make his assessment of items such as brackets, fixings, etc., from details stated in the schedules and shall include in the item prices for such small installation materials as are required for the complete installation in accordance with the specification. Conductor prices shall include for wastage and sagging.

7 All conductors have been measured exclusive of sagging and wastage. The Contractors prices must therefore include for sagging as well as wastage.

8 All prices entered in these Bills of Quantities shall include for supply [unless otherwise stated], installation, testing, commissioning, guarantee with free maintenance during the Guarantee period and profit but excluding VAT.

9 The successful Tenderer and the Employer or his Agent may agree that the total of any bill or bills, including any variations by way of additions thereto or deductions therefrom, represents a fair accurate quantification of the items set out in the bills and the parties may agree to final payment on that basis. In the event of any dispute as to the quantities, the disputed item or items shall be adjusted where necessary.

10 The quantities in these Bills of Quantities are not to be used for ordering materials.

11 The description of each item shall, unless other-wise stated herein, be held to include making, conveying and delivering, unloading, storing, unpacking, hoisting, setting, fitting and fixing in position, all installation materials and sundries, cutting and waste, sagging, patterns, models and templates, plant, temporary

works, return of packing, establishment charges, profit and all other obligations arising out of the conditions of contract.

12 All measurements are net and Tenderers must allow for wastage in the item rate submitted.

13 All provisional sums shall be expended as directed by the Employer and any balance remaining shall be deducted from the amount of the contract sum.

All items described as "Provisional" shall be measured as executed and paid for according to prices in the Bills of Quantities and any unexpended amounts shall be deducted from the amount of the contract sum. No work for which "Provisional" items are provided shall be commenced without written instructions from the Employer.

14 It is a requirement of the contract that the work shall be carried out in the manner that is most economical on materials. Unless otherwise indicated by the Employer, the Electrical Contractor is required to use the shortest practical route for all conductors subject to the restrictions of the specification and good electrical practice.

15 The terms in the Bills of Quantities are based on standard Eskom/Telkom assemblies. The Tenderer shall take careful notice to the make-up of these assemblies with regard to the inclusion/exclusion of excavation, poles, stays, earthling and other items.

16 The prices shall be fixed and not subject to adjustment for inflation for the period between contract and programmed completion as set out in the contract.

Tenderers are to specifically note that the Bills of Quantities must be priced as per the quantities provided. Any change in the descriptions and/or additional information must be made in an alternative offer.

No quantities in the original Bills of Quantities or description of equipment offered are to be changed and must remain as is.

Note:

It will be expected of the successful tenderer to submit a full re-measured Bills of Quantities within twenty-one [21] days after acceptance of the tender price.

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB
ICT INSTALLATIONS AND ACCESS CONTROL

BILL NO. 1 : PROVISIONAL AND SUPERVISION AMOUNTS

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
	A Preliminary and General item is provided to cover the Contractor's charges for compliance with the Conditions of Contract and this Specification, including the provision, maintenance and removal of his site establishment, etc.				
1,10	FIXED CHARGES				
1.1.1	Site Establishment	Sum	1,00		
1.1.2	Removal of Site Establishment	Sum	1,00		
1.1.3	Provision of Electricity and Water	Sum	1,00		
1.1.4	Provision of Toilet Facilities	Sum	1,00		
1.1.5	**Other Fixed-charge Obligations**	Sum	1,00		
	(Please Specify).	Sum	1,00		
	. . . . .	Sum	1,00		
1,20	CONTRACTUAL REQUIREMENTS				
1.2.1	Provision of Sureties	Sum	1,00		
1.2.2	Insurances	Sum	1,00		
1.2.3	Third Party Insurance	Sum	1,00		
1.2.4	Guarantee of the Works	Sum	1,00		
1.2.5	Provide Test Results	Sum	1,00		
1.2.6	All OHSA Requirements including safety equipment and clothing	Sum	1,00		
1.2.7	All HIV / AIDS Specification Requirements	Sum	1,00		
1.2.8	**Other Value Related Obligations**	Sum	1,00		
	(Please Specify).	Sum	1,00		
	. . . . .	Sum	1,00		
1,30	TIME-RELATED ITEMS		1,00		
1.3.1	Contractual Requirements	Sum	1,00		
1.3.2	Operation and Maintenance of Site Establishment	Sum	1,00		
1.3.3	Supervision for the Duration of Contract	Sum	1,00		
1.3.4	**Other Time-Related Obligations**	Sum	1,00		
	(Please Specify).	Sum	1,00		
	. . . . .	Sum	1,00		
TOTAL SCHEDULE NO. 1 TO PRICE SUMMARY					

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB
ICT INSTALLATIONS AND ACCESS CONTROL

BILL NO. 2: ICT (DATA AND TEL WIRING) INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
2.1	**NETWORK SWITCHES**				
2.1.1	Supply and install 24 port network switch	no	1		
2.1.2	Supply and install wall mounted cabinet suitable for above network switch with glass door	no	1		
2.2	**TELEPHONE BOARD** The supply and installation of flush board with soft wood backing architrave and hinged door				
2.2.1	Supply and install 300 x 300 x 100 board	No.	1		
2.3	**HORIZONTAL CABLING**				
2.3.1	The supply and installation of horizontal unscreened CAT6 UTP cable as per specification.	m	700,00		
2.3.2	The supply and installation of horizontal unscreened CAT6a UTP cable as per specification	m	360,00		
2.3.3	The supply and installation of Telephone cabling similar to existing price to include termintating cable onto RJ11 in power skirting	m	600,00		
2.3.4	Termination of horizontal cabling onto patch panels in patch rooms. The labour to terminate the cabling onto the horizontal patch panel shall be allowed for under this heading [excludes Computer Room]	no	24		
2.3.5	The supply and installation in the floors/ceiling of unshielded RJ45 data connectors in powerskirting/unistrut/void duct as per the specification, complete with shutters and adequate space for cable numbering. This item relates only to the RJ 45 connectors and the housings. CAT6 UTP	no	24		
2.3.6	Data termination plate sized for the mounting of the data outlet housing on the void duct in the floor/ceiling [recessed type]. The data termination plate shall have 3 x punch-outs 250mm x 127mm mounted on P9000 - to be verified prior to installation.	no	5		
2.3.7	Data cover plate for a 4x4 box with data cut-out similar or equal to Legrand Arteor with RJ45	no	5		
2.5	**LABELLING**				
2.5.1	The supply and installation of heat shrink type labels at either end of the data cable as specified.	no	20,00		
TOTAL SCHEDULE NO. 2 TO NEXT PAGE					

TOTAL FROM PREVIOUS PAGE					
2.5.2	Labels consisting of engraved Perspex tags glued onto the 6 way 4-port outlets indicating the data connector number as per the specification and DOH requirements	no	20		
2.5.3	Labelling of the data points on the ceiling T's underneath the ceiling to facilitate easy referencing and identification of location of voice and data points underneath the raised access floor tiles	no	20		
2.6	**PROVISIONAL ALLOWANCES**				
2.6.1	Trace existing ICT network and link it to the new installation	Sum	1,00		
2.6.2	Trace existing ICT cables in the ceiling space and extend into new data/telephone connectors as shown on drawings	Sum	1,00		
2.7	**TESTING**				
2.7.1	Testing and commissioning of the entire Installation	Sum	1,00		
2.8	**ON SITE SUPPORT** It is expected of the vendor to provide support for the pre and post contract works for assisting the tenant whilst moving into the building.				
2.8.1	Team hours required for the on-site support. The hourly rate will be for a team comprising a team leader and one assistant				
	Team leader	Hrs	48,00		
	Assistant	Hrs	48,00		
TOTAL SCHEDULE NO. 2 TO PRICE SUMMARY					

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB

BILL NO. 3 : SUNDRY ITEMS

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
3.1	Housekeeping, sundry items, consumable stocks such as engraving, labels etc.	Sum	1		
3.2	Testing of complete installation in terms of the regulations	Sum	1		
3.3	Operating and Maintenance manuals (hard copies and CD)	Sets	3		
3.4	Training of 6 hospital staff in the complete functioning of the System,	Item	1		
TOTAL SCHEDULE NO. 3 TO PRICE SUMMARY					

MOTHERWELL CHC - EMS, GATE HOUSE, REFUSE, STORAGE PROPOSAL AND REHAB

ICT INSTALLATIONS AND ACCESS CONTROL

PRICE SUMMARY PAGE

BILL NO.	DESCRIPTION	AMOUNT
1	PRELIMINARY & GENERAL	
2	ICT	
3	SUNDRY ITEMS	
	SUBTOTAL	

10% Contingency _____

Total Excluding VAT _____

15% VAT _____

Total including VAT to Form of Offer _____

REMINDER NOTE

The Total Price including Main Contractor's Mark-up which excludes VAT, must be carried over

to the final summary in Volume 1 and all fixed amounts shown in the price schedule must be included

therein. No adjustments will be made for any failure by Tenderers to include the fixed amounts in

the Total Price for this particular installation.

SUB-CONTRACTOR'S NAME:

DATE: .....

SIGNATURE:

.....

N.B. The above-named Sub-Contractor is to be employed on this contract. Substitute

Sub-Contractors are not acceptable.

The price submitted include all Main Contractor's 'Profit and Mark up BUT Exclude the VAT when transferring price to Volume 1 of the Final Summary Total of the Main Contractor's Document

VOLUME 2.1

MECHANICAL INSTALLATION

HVAC INSTALLATION

VOLUME 2.1 PART 1: HVAC - SCOPE OF WORKS

HEATING VENTILATION AND AIR CONDITIONING EQUIPMENT

1. GENERAL

1.1 The Standard for Uniformity in Construction Procurement published in terms of the Construction Industry Development Board (CIDB) Act, 2000 (Act No. 38 of 2000), the Standardized Construction Procurement Documents for Engineering and Construction Works as issued by the CIDB and any other relevant documentation pertaining thereto must be studied and all principles in this regard must be applied to all procurement documentation, practices and procedures.

2. THE CONTRACT

2.1 HEATING VENTILATION AND AIR CONDITIONING EQUIPMENT

The work to be carried out and commissioned by a SAQCC gas approved installer:

a. Split type air conditioning inverter heat pump units,
b. Blygold / Bluechem or equal and approved corrosion treatment,
c. Fresh air and extraction ventilation systems,
d. Testing and Commissioning, as per SANS 10400 Section T & W and SANS 10252,
e. Manuals, Drawings, OEM Literature,

2.2 Existing

All installations new. Building is Existing.

2.3 Order of The Works

As per the building contractors' program of works.

VOLUME 2.1 PART 2: HVAC - STANDARD SPECIFICATION

1.0 GENERAL

The scope of Work is as stated in 1.0

The system shall offer the best possible compromise between the initial expenditure and the long term interest and redemption charges and running/operating costs.

The design and installation shall comply with the codes of practice and standards promulgated by recognized authorities in the fields of air-conditioning, refrigeration, ventilation, piping, electrical technology and all other branches of engineering science applicable, such as the S.A.N.S., B.S.S., A.S.H.R.A.E., SMACNA and A.S.M.E.

All workmanship and materials used in the execution of the works shall conform to modern practice and the entire installation shall comply fully with all relevant requirements of governmental and the Local Authority whose jurisdiction embraces the location of the site.

2.0 BIDS

2.1 Conditions of bid

The attention of bidders is drawn to the conditions of bid as indicated on the official bid form.

2.2 Modifications

Bidders are at liberty to submit modifications based on their standard practice and such modifications, with reasons therefore, shall be clearly stated in the bid. The price for this shall not be included in the net bid price but shall be stated separately as an extra or an omission.

2.3 Checking of bid documents

On receipt of the bid documents, the bidder must, prior to submitting his bid, check all the bid documents and should any difference or discrepancy between or in the Drawings and Specification be detected by the bidder, he shall seek in writing a decision also in writing of the Representative/Agent on the true intent and meaning of the bid documents as the East London Industrial Development Zone cannot be held liable for the additional cost of extra work that may be caused as a result thereof.

2.4 Scope of bid price

The bid price and all prices and/or rates which are inserted into the price schedules in the Specification and transferred to the bid form, must be for the execution and completion of the Works in accordance with the Drawings, Specifications and Conditions of Contract, as well as for the provision of all labour, materials, workmanship, machinery, plant and everything that is or may become necessary.

If there are or may be any exemptions form levies, customs duties, tax, etc applicable on materials, good or work, the bidder must make his own arrangements therefore, as the bid price shall be regarded as comprehensive.

2.5 Value Added Tax

The bid price shall include Value Added Tax payable in terms of the Value Added Tax act, 1991 (Act 89 of 1991).

2.6 Information required with bids

Bidders shall supply with their bids a full specification where necessary, including dimensioned drawings or sketches of the plant, and a complete wiring diagram of any automatic controls.

Particulars shall be given as set out in the schedule concerned which shall be filled in by the bidder. Failure to comply with these requirements may render the bid liable to disqualification.

2.7 Proof that materials are available

A bidder may be required, before acceptance of his bid, to furnish proof to the satisfaction of the Representative/Agent that he is in a position to secure all the materials required to complete the Contract within the contract period stated in the contract documents.

2.8 Bid documents and ownership thereof

The bid documents consisting of the official bid form, the specifications and the drawings (if any) scheduled in the Specification, and which have been made available to bidders, are the property of the East London Industrial Development Zone and shall be returned to the East London Industrial Development Zone, whether or not a bid is submitted.

3.0 THE SITE

3.1 Definition of Site

Location:	Motherwell CHC, Gqeberha (Port Elizabeth), Eastern Cape	
Altitude:	0 m above Sea Level.	
External:	Summer Max. Average	: 26°C
	Winter Min. Average	: 6°C

3.2 Inspection of Site

Bidders shall visit the Site before biding and satisfy themselves as to the local conditions, the accessibility of the Site, the full extent and nature of the work to be done and the conditions affecting the execution of the Contract generally. Claims on the grounds of lack of knowledge in such respects or otherwise will not be entertained.

3.3 The Site

The Site to be occupied by the Contractor will be clearly defined on the site plan, or will be pointed out to him by the Representative/Agent. The Contractor will on no account be allowed to extend his operations beyond the boundaries of the Site.

3.4 Procedure of work (Site in occupation)

If the site will be in occupation during the course of the Contract, the Works shall be carried out at such times and in such manner as will cause the least inconvenience to the occupants, and still allow the work to be proceeded with expeditiously. The instruction of the Representative/Agent shall be complied with in regard to the carrying out of any portion of the works which in his opinion requires to be expedited and priority shall be given to such work as and when directed.

(Site not in occupation)

If the Site will not be in occupation during the course of the Contract, the Works shall be proceeded with expeditiously. Priority shall be given to any portion of the Works as indicated in the Specification.

3.5 Existing services

If the Contractor encounters any existing services such as cables, pipes or sewers during the execution of the works, he must immediately notify the Representative/Agent, halting all work in the vicinity thereof, until instructions to proceed have been given by the Representative/Agent. Electric wires, telephone wires, pipes, etc., shall not be interfered with during the course of the Contract, but should it be necessary to disconnect or cut any such wires or pipes the Representative/Agent shall be advised thereof and his instructions awaited.

3.6 Protection of trees, shrubs and plants

The Contractor will be held responsible for any damage to trees, shrubs and plants on the Site and shall make good such damage at his own expense.

Trees, shrubs and plants may only be removed as indicated on the Drawings. The remaining trees, shrubs and plants may not be removed, cut back or disturbed in any way without the written consent of the Representative/Agent.

3.7 Water for the Works

The contractor shall provide all water he may require for the execution of the Works at his own expense.

3.8 Electricity for the Works

The Contractor shall provide all electricity for the execution of the Works at his own expense.

3.9 Recoverable materials property of Contractor

Items specified to be removed, taken out, demolished or dismantled and which are not specified for re-use, or for handing over to the Representative/Agent or others, become the property of the Contractor and must be removed from the Site immediately.

4.0 ADMISSION TO SITE

4.1 Permission for admission to and establishment on Site

Before the Site is visited by bidders or before the successful bidder (Contractor) establishes himself on the Site, the Representative/Agent's prior approval must be obtained. The Representative/Agent will, in the case of a Site located in defence or other security areas, make arrangements with the unit commander, or in the case of other Government sites, with the officer-in-charge, for permits for inspection of the Site for biding purposes.

5.0 PAINTING

Painting shall only be necessary to those items which would normally be visible or visible when serviced, all mild steel or other components which would otherwise suffer corrosion if unpainted, however, shall be painted with two coats of rust-proof paint whether such components are normally visible or not.

Items which are factory-painted need not be repainted other than any making good which may be necessary. All plants requiring painting shall be correctly prepared and painted. No untreated metal surfaces shall be permitted on the project.

Items which are not galvanized or similarly protected against rust and corrosion shall be painted, as later detailed herein. No equipment, hanger brackets, etc., shall be permitted to be delivered on site in unprotected from; they shall be factory-coated with an approved zinc-rich prime coat before dispatch from their place of manufacture.

Painting shall comprise the following consecutive processes. First thoroughly clean, descale and degrease all surfaces, in accordance with acknowledged good practice, follow with a good coating of approved zinc-rich primer and finish with two coats of quality high-gloss enamel of an acceptable make. Final finish shall be to the full approval of the Engineer.

With the exception of ducting and piping, items with a galvanized finish, such as cable trays, need not be painted but shall be properly cleaned with a suitable proprietary galvanized iron cleaning fluid.

Particular care shall be taken that appropriate primers be used as a basis for painting and that paint be of high quality manufacture, all to provide a completely satisfactory finish to the approval of the Engineer. It shall be noted that galvanized surfaces are to be treated to ensure proper bonding of paint.

Whereas it would not be necessary to paint any ductwork conduits or pipe work installed in roof voids, shafts masonry ducts, etc., or where not normally visible, it is a requirement that such equipment be properly cleaned, treated with two coats of rust proofing paint if not galvanized or not metal subject otherwise to rust.

All equipment on the project shall be colour-coded in accordance with standards recognized in the Republic of South Africa and, where possible, to comply with relevant South African National Standard Colour Codes. (SANS. 01091-1975).

6.0 PIPEWORK

Refrigeration pipe work shall be carried out in seamless refrigeration quality copper tubing, suitable provision being made that the piping is not subjected to any stresses by vibration from the compressors.

7.0 EQUIPMENT SUPPORTS

Where equipment supports, stands, platforms and suspension brackets are indicated, specified or necessary for ductwork, pipe work, etc., the Sub-contractor shall provide supporting structures

capable of carrying the load without distortion, affixed to the building structure in such a manner as not to subject it to undue stress.

Supporting of any rotating equipment shall incorporate vibration mountings of the type and selection specified in the applicable clauses referring to equipment bases herein.

All methods of suspension or supports shall be submitted to the Engineer for approval and for reference to the Structural Engineer where necessary prior to manufacture or installation.

Generally, supports shall preferably be proprietary products such as Unistrut or failing this, shall be of mild steel sections, purpose fabricated for their application. Under no circumstances whatever will sheet metal straps or plastic tie-wraps be accepted as a supporting method.

All supports shall cradle the item to be supported; shall not be riveted or welded to the equipment to be carried except in exceptional circumstances approved by the Engineer. Rod hangers shall not exceed one meter in length and be of minimum diameter 12 mm. For longer suspensions use mild steel angles. Angel iron supports shall be of 25 mm x 3 mm minimum. All supporting structures for equipment shall be dip galvanized.

Fastening methods shall employ REDHEAD or RAMSET anchor bolts or their equivalent for fixing supports to the building structure, it not being permissible to utilize gunpowder shot-driven bolts for this purpose unless prior approval be obtained.

Pipe work supporting holder bats shall be the product of a recognized manufacturer of such equipment, shop-fabricated saddles or similar devices being unacceptable unless limited space available necessitates their use. On insulated pipe work, hardwood inserts consisting of two-round machine cut pieces of timber shall be clamped around the pipe, insulation being cut away at such points, to allow proper support fitting. Wooden inserts shall be of the same thickness as adjoining insulation and 50 mm longer than the width of the holder bat support, to permit correct finishing of the insulation of vapour sealing to them.

Cable and flexible pipes shall be supported on Unistrut or equivalent perforated galvanized cable trays, manufactured by specialists, shop-fabricated trays or racks not being acceptable. The cable tray shall be suspended or bracketed using suitable mild steel angles.

8.0 DRAINS

The sub-contractor to provide all necessary drain piping laid to suitable falls from every item requiring such drainage. Such drains shall be run to the adjacent relevant drain points shown on the Drawings.

Drainage pipe work shall be adequately sized and carried out generally in medium grade galvanized piping and secured to wall (where applicable), all connections to equipment being effected with conical faced unions or flanged.

Drainage pipe work of longer than 4,5m run shall be provided with cleaning eyes on all bends to facilitate maintenance.

All condensate drainage is to terminate to the nearest drain.

9.0 ASSEMBLY OF COMPONENTS

9.1 It is essential that all mating components such as couplings, taper lock bushes, machined faces, etc., be thoroughly cleaned with a suitable solvent before assembly. All surfaces must be free from burrs or irregularities, which may prevent the correct mating of the surfaces.

9.2 A molybdenum-disulphide lubricant similar or equivalent to Mobil-grease Super shall be used on the threads of all bolts and between the mating surfaces of all parts closely fitted together, such as shafts and couplings, keys and base plates. PTFE tape shall be used in all screwed pipe connections.

10.0 WELDING

10.1 Welding shall be carried out in accordance with the current edition of SANS 044 Parts I to VII where applicable.

10.2 All welded filler or butt joints shall be free from porosity, cavities and entrapped slag. Joints shall be ground smooth, if required for aesthetic reasons only, without effecting weld strength.

10.3 The joints in the weld run, where welding has been recommended, shall be as smooth as possible and shall show no pronounced hump or crater in the weld surface.

10.4 The profile of the weld shall be uniform, of approximately equal leg length and free from overlap at the toe of the weld. Unless otherwise specified the surface shall be either flat or slightly convex in the case of fillet welds and with reinforcement of not more than 3mm in the case of butt welds. The weld face shall be uniform in appearance throughout its length.

10.5 Filler metal electrodes shall be of an approved type for the material being used and shall be kept in a dry condition. All electrodes shall conform to SANS 0455.

10.6 Only welders in possession of a valid approved competence certificate shall be employed.

10.7 All welds must show proper fusion.

10.8 Where welding is contemplated in pipe work systems, Tenderers shall allow for the removal and testing by an approved body of 5% of the welded joints in the system. These will be removed at random as indicated by the Engineer and tested. Should faulty welding be discovered, all other joints shall be X-ray tested by the SANS or an approved body, all at the expense of the Contractor.

11.0 GALVANISING

11.1 Unless otherwise specified in the Detailed Specification the following items shall always be galvanised:

a) Fabricated mild steel sections exposed to the weather.
b) Steel grilles and louvers exposed to the weather.

11.2 Where hot dip galvanising is called for, items to be galvanised shall be entirely pre-fabricated and then dismantled in sections for galvanising. No cutting of threads or welding will be accepted after galvanising.

11.3 All hot dip galvanising shall be carried out in accordance with SANS 0934 and SANS 0763 where applicable, including preparation for galvanising.

11.4 Mild steel plate and sections shall be of good commercial quality, or higher grades, best suited for galvanising. The materials shall be free from slag or coarse laminations, fine fissures and rolled-in impurities.

11.5 Castings shall be sound, dense and clean, and free from distortion, porosity, carbon and slag enclosures, blowholes, and other injurious conditions.

11.6 Welding flux shall be chipped away and all welds wire brushed before galvanising.

11.7 The surface to be galvanised shall be free from paint, oil, grease and similar impurities.

11.8 All exposed surfaces including welds shall be thoroughly sand blasted prior to galvanising.

11.9 The Engineer reserves the right to inspect all steel components before galvanising, and shall have the right to reject or ask for remedial treatment of any material which is considered to be unsuitable. This applies particularly to welds.

11.10 The galvanising coating shall be smooth, adherent, continuous and free from black spots or flux stains.

11.11 Globular extra-heavy deposits of zinc, which interfere with the intended use of the material, will not be acceptable. Excessively protuberant lumps and nodules shall be removed by hot wiping or by the skilful application of mechanical means, however there shall remain a sufficient minimum thickness of unbroken zinc coating. Flaws on small parts and working surfaces shall be repaired only by stripping and re-dipping.

11.12 Repairs to galvanised coatings will not be accepted. Items damaged will need to be re-galvanised.

11.13 Coating thickness shall be as per table 1 of SANS 0763 unless otherwise specified in the Detailed Specification.

11.14 The SANS requirement for uniformity shall apply.

11.15 Galvanised surfaces specified with paint finishing shall not be passivated.

12.0 BEARINGS

12.1 Anti-friction

Anti-friction bearings shall include all bearings, which provide rolling contact between one or more sets of hardened steel balls or rollers and hardened steel rings or raceways.

Anti-friction bearings shall be of approved manufacture and available throughout South Africa.

To facilitate maintenance, spares interchangeability and standardisation, anti-friction bearings of standard design and manufacture shall be employed. All anti-friction bearings shall be provided with greasing facilities in accordance with manufacturer's requirements.

12.2 Bushed Bearings

Only where specifically stated in the Detailed Specification and in the case of low velocities and light loads in moisture free conditions will bushed bearings be accepted. All bushed bearings shall be made of an approved bearing metal composition, which has good anti-friction qualities and is capable of withstanding severe usage in the specific application.

All bushed bearings shall be provided with lubrication facilities to ensure adequate lubrication and shall be properly grooved to distribute the lubricant uniformly over the bearing surfaces. Grooves shall not be cut into the journal, but always into the surrounding bush. The edges of all chambers and grooves shall be rounded to avoid sharp corners and to facilitate the introduction of the oil or grease between the journal and the bearing metal.

12.3 Self-lubricating or oil less bearings

Self-lubricating or oil less bearings shall only be used on application of light and low velocities in moisture free and low humidity conditions and where access to bearings is difficult and likely to be neglected during servicing.

The type of bearing metal composition used shall have frictional and wear resistant properties akin to those of grease lubricated bushed bearings.

13.0 NOISE AND VIBRATION CONTROL

13.1 General

Unless otherwise specified in the Detailed Specification the design,
Manufacture and installation of all the mechanical and electrical equipment shall be such as to ensure compliance with the relevant sections of SANS 0103 of 1983 "The Measurement and Rating of Environmental Noise with Respect to Annoyance and Speech Communications", as amended.

Any installation where the measured residual sound level exceeds the maximum desired residual sound level as per SANS 0103 shall be rectified to comply with SANS 0103 at the Contractor's own expense.

In all plant room applications where airborne noise cannot be limited or comply with the set standards, provision shall be made for acoustical treatment of the equipment involved or, alternatively, total enclosure thereof with acoustical panelling to comply with requirements laid down in this specification.

Such provisions shall be included in the tender price and no claims for payment to comply with this requirement will be entertained.

13.2 Vibration Isolation

Proper provisions shall be made in the foundations and mountings of all equipment capable of transmitting vibration forces to its environment, whether local or remote, (As is the case with pipes) for vibration isolation.

14.0 DAMPING

14.1 Where static deflections in excess of 8mm are indicated, steel springs shall be employed incorporating acoustic sound pads in series with the spring.

The horizontal stiffness of the springs shall not exceed that in the vertical, in particular for systems mounted at vertical frequencies below 5Hz.

Low frequency mounts shall incorporate rubber snubbers to accommodate extreme horizontal or vertical motions such as can occur near resonance during start up.
The snubbers shall however not be relied upon to provide the necessary horizontal stability of the machine in normal operational conditions.

Spring layouts and inertia blocks shall be employed to avoid this situation.

For static deflections below 8mm, rubber in sheer mounts may be used provided the frequency is above 6Hz.

For small static deflections less than 4mm and particularly for high-speed machines and general acoustic isolation, ribbed rubber neoprene composite pads may be employed subject to the specified requirements.

No equipment shall be installed in critical areas without correct and approved vibration isolation. Sufficient stability and damping shall be incorporated in the mountings to minimise the movement of the machine during start up or changes in the operating conditions.

The selection of mounts shall take proper cognisance of unequal distribution of the mounting weight of equipment and rotational and/or pressure forces acting thereon.

15 PUMPS

Where condensate pumps are required, the pumps shall be totally enclosed in the corner of the surface mounted trunking, and shall be specified to pump the maximum condensate generated by the unit.

16.0 FANS

16.1 Centrifugal Fans

No centrifugal fan shall be selected in a class range other than Class 1 or 2 and the rotating speed of the fan at duty point shall not exceed 1 440 r/min.

Centrifugal fans in critical areas and fans above 7,5kW shall in all cases be mounted together with the drive motor on anti-vibration mountings together with the correct inertia mass.

16.2 Propeller Fans

Propeller fans shall comply with the criteria already laid down and shall be carefully selected for the highest possible efficiency with due regard for the noise criteria.
Propeller fans in excess of 0,5kW and of rotational speed higher than 800 r/min shall, in addition to the requirements already laid down, be mounted on correctly selected and installed anti-vibration mountings to reduce possible vibration transmission to surrounding structures.

16.3 Axial Flow Fans

Axial flow fans shall be selected for the highest possible efficiency and comply with the noise criteria specified. In critical areas no fan shall be installed without attenuators on inlet and outlet sides.

In addition it will be required that the fan as a whole be mounted on anti-vibration mountings and where specified in the Detailed specification, it may be required for the fan to be enclosed in acoustic panelling.

No axial flow fan may be installed without anti-vibration mountings to match the fan characteristics and in critical areas it may be required for the axial fan to be provided with inertia mass to match.

Fan rotational speeds specified in the Detailed Specification shall not be exceeded.

17.0 PIPING

17.1 General

Under no circumstances may any piping be directly connected to noise generating equipment such as pumps, chillers, cooling towers etc.

Connections to such equipment shall be made with correctly selected flexible rubber type connectors of the spherical type.

In critical areas double spherical rubber type isolators immediately adjacent to the noise generating machine will be required.

17.2 Pipe Penetrations Through Walls

Under no circumstances will pipe penetrations through walls be permitted where the pipe comes in direct contact with the surrounding wall or structure.

At such penetrations it is required that a sleeve of 25mm thick soft neoprene, or other approved material, be provided around the piping at the penetration and, where plastering is applied, plastering shall be cut back to the outer edge of this sleeve.

Rubber links similar to the LINK-SEAL bolted type are preferred.

17.3 Pipe Supports

In all critical applications and within the first ten meters of all equipment, it is required that pipe supports shall be of the flexible type, correctly selected for the application and with the correct static deflection.

Any other areas and applications at risk of noise or vibration transmission to the surrounding structure similarly require pipe mountings isolated from the structure.
Pipe supports fixed to sensitive building elements will not be permitted.

17.4 Refrigerant Piping

Refrigerant piping in critical applications shall similarly be supported on anti-vibration mountings and in addition, delivery and suction piping at compressors and air handling units shall be provided with at least two braided flexible connections installed at 90° to each other and in close proximity of each other.

18.0 SOUND ATTENTUATORS

18.1 Where required, in order to comply with the noise and vibration criteria already laid down, or where specified in the Detailed specification, sound attenuators shall be provided for ventilation, air conditioning and all other plant (Duct mounted and/or as applicable).

Primary sound attenuators shall be installed near or in the plant room.
The attenuators selected shall match the specific fan or plant characteristics to ensure the correct insertion loss to meet the sound criteria laid down.

Unless otherwise specified, sound attenuators shall be installed with flexible connections at the inlet and outlet connections.

The sound attenuators shall in addition be selected to produce the minimum pressure loss across the attenuator coupled to the least re-generated noise level produced by the flow through the attenuator.

18.2 Unless otherwise specified, air path sound attenuators shall be manufactured from galvanised sheet steel with the sound absorption material moisture repellent and erosion resistant up to 20 m/s air speed, and preferably flange connected.

Wherever possible attenuators shall be proprietary type supplied by the same manufacturer as the plant manufacturer to ensure complete compatibility.

Where not clearly indicated on the drawings, attenuators shall in all cases be provided at points where supply and return air ducting leaves the plant room and shall be installed to prevent noise breakout from the plant room via the ductwork.
Where specified in the Detailed Specification and indicated on the drawings, additional cross talk attenuators shall be installed in the air conditioning or ventilation ductwork.

The internal free area of sound absorbers shall be not less than the cross sectional area of the connecting duct as indicated on the drawings.

18.3 Field fabricated type sound absorbers shall be made as follows:-

All sides of rectangular ducting shall be double walled with the inner walls perforated with 10mm holes at 25mm centres. The space between the two sidewalls shall be divided into 3 unequal sections by means of 25mm thick cement fibre panel strips and filled with glass wool. The lining thickness shall be at least 80mm. Circular
ducts shall be lined as specified above except that the lining thickness shall not be less than 100mm.

19.0 AIR FILTERS

19.1 General

Filters of the type, size and quantity as specified in the Detailed Specification shall be provided.

Filter efficiency and arrestance shall be in accordance with ASHRAE Test Standard 52-76.

Filters and filter holding frames shall be of approved manufacture with standardised dimensions to enable replacement with equivalent filters of all recognised manufacturers.

Construction and manufacture of all components shall be such that under no circumstances any unfiltered air can by-pass filters or filter banks.

Sufficient space shall be allowed in front or behind filters, as applicable, to enable inspection and servicing.

Proper access doors shall be fitted to filter service areas.
Filters installed close to exposed air inlets shall be weather protected with weather louvers and a wire mesh screen.

Tubes for the measuring of the pressure drop across each filter bank shall be fitted as standard to enable connecting a manometer or other instrument as specified.

All filters and filter banks, including two-stage high efficiency and final filters shall be fitted with inclined pressure differential manometer gauges, clearly marked with filters clean (green) and filters dirty (red) indicators of a permanent type.
A separate manometer shall be fitted for each filter stage.

Fan and system selection shall allow for expected final filter resistance to ensure a supply air quantity in excess of 90% of design air quantity immediately prior to filter replacement.

Unless otherwise specified in the Detailed Specification only dry media filters are required. Where specified, pressure monitoring across a filter bank or banks shall be fitted for alarm purposes using differential pressure switches to activate the warning alarm or indicator required.

Where air filters of the washable type are specified in the Detailed Specification a suitable filter wash tank and stand complete with a drying rack shall be provided in each plant room.

The wash tank and stand shall be manufactured from galvanised steel and epoxy powder coated. The

wash tank shall be connected to mains water and a suitable overflow and drain piped to the building drain fitted. The drying rack shall hold at least 20 filters. Where washable filters are specified one complete set of spare filters shall be provided.

19.2 Panel Filters

Panel filters shall be of the pleated type and not less than 50mm thick.
The filter shall be washable or disposable as specified.

Synthetic media shall be used bounded together with galvanised wire for reinforcing and bonded in the frame ensuring no air bypass.

The frame shall be galvanised steel or a distortion and corrosion free moulding.
Initial synthetic dust arrestance shall be not less than 70% with dust holding capacity needed in excess of 300g per square meter nominal face area.
Initial dust spot efficiency shall be not less than 20%.

Nominal filter face velocity shall not exceed 1,5m/s with initial clean filter resistance 60Pa or less and recommended resistance at specified arrestance not more than 250Pa.

19.3 Pad Type Panel Filters

Pad type panel filters shall make use of disposable replacement media of thickness as specified, but generally not less than 25mm thick.
Disposable media supplied and the filter in general shall comply with 24.1 above, unless otherwise specified.
The media shall be held in galvanised steel frames with galvanised steel screen supports on both sides. The downstream screen shall be fixed in the frame with the upstream screen removable.

19.4 Extended Surface Intermediate Efficiency Filters

Filter media shall be self-supporting, leak-free and stable under all airflow conditions.
Front frames shall be of aluminium, galvanised steel or reinforced high-density hard polyurethane foam with a continuous foam rubber gasket.
"Slide-in" type of arrangements will not be accepted for filters in this class.
Filter depths less than 150mm will not be accepted.

Galvanised protection screens shall be fitted to match the airflow arrangement.
Initial synthetic dust arrestance shall be not less than 85% with dust holding capacity not less than 1500g per square meter nominal face area.

Nominal filter face velocity shall not exceed 2,5m/s with initial clean filter resistance 60Pa or less and recommended resistance at specified arrestance not more than 250Pa.

19.5 High Efficiency Particulate Air Filters (HEPA)

Filter media shall be self-supporting leak-free and stable under all airflow conditions.

The media shall be bonded in to a pressed and sealed particle board housing.
Unless otherwise specified in the Detailed Specification filters shall be provided with silicone filled channel seals.

"Slide-in" type of arrangements will not be accepted for filters in this class.
Filters shall be arranged in two or three stage configuration with the primary filters complying with clauses above as specified in the Detailed Specification.

Filter depths less than 300mm will not be accepted and effective filter media surface area shall exceed 50m per square meter nominal face area.

Each filter shall be individually tested in the factory for leakage with a DOP aerosol and supplied to site in completely sealed protection containers.

Corrugated media separators shall be of aluminium or Kraft paper.
Filter efficiency shall be not less than 99,9% when tested with 0,3 micrometer Dioctylphthalate smoke.

Dust holding capacity shall not be less than 2 000g per square meter nominal face area.

Nominal filter face velocity shall not exceed 1,5m/s with initial clean filter resistance to be 250Pa or less and final resistance not to exceed 500Pa.
Pressure monitoring across the HEPA filters is required with warning light and/or alarm as specified.

19.6 Filter Holding Frames

Filter holding frames shall be the manufacturer's standard product installed and used in accordance with his recommendations.

Holding frames shall be manufactured from at least 16 gauge galvanised or epoxy powder coated steel. Holding frames may be bolted or riveted together and shall be suitably reinforced in larger arrangements to withstand all possible operating conditions.

Fasteners shall be positive sealing type and a minimum of four fasteners per filter is required. Fasteners shall match the particular filter, filter arrangement and frame.

20.0 MEASUREMENT OF COMPLETED WORK

The attached Bills of Quantities is provisional, which means that the Bill does not represent the exact scope of work to be performed and completed and that every piece of completed work will be measured and agreed with the Contractor before payment is processed.

21.0 UNAUTHORISED EXPENDITURE

Although the Engineer has conducted the audit of the buildings installations other items may have degraded in the intervening period up to site handover. It is therefore very imperative for the Contractor to bring to the Engineer’s attention as soon as he / she realises that the work measured in the Bill of Quantities may be appreciably exceeded. Failure to observe this procedure where the Contractor proceeds with excessive additional work without authorisation will be tantamount to unauthorised expenditure which may lead to non-payment for unauthorised work.

22.0 SPECIFICATIONS & STANDARDS

The works carried out under this Contract shall be governed by the:

(i) The latest issue of SANS 10142: “Code of Practice for the Wiring of Premises”

(ii) The Occupational Health and Safety Act, 1993 (Act 85 of 1993) as amended

23.0 SCHEDULE OF MATERIALS

In all instances where schedule of materials are attached or included on the drawings, these schedules are to be regarded as forming part of the specification.

24.0 QUALITY OF MATERIALS

Materials are to comply with the relevant South African National Standards (SANS), or to IEC specifications, where no SANS specifications exist. All materials used shall bear the SANS mark of approval as applicable.

25.0 PROGRAMME AND PLANNING

The sequence, in which the work must be carried out, must be established in consultation with the Main Contractors construction programme, Sub-contractors and their respective Domestic contractors. The Engineer must be kept informed on the progress all the time.

26.0 SUPERVISION

The work shall, at all times be carried out under the supervision of a skilled and competent representative of the Contractor, who will be able and be authorised to receive and carry out instructions on behalf of the Contractor.

27.0 WORKMANSHIP

All inferior work shall, on indication by the Engineer, immediately be removed and rectified by and at the expense of the Contractor.

28.0 SUPPLY OF MATERIAL

The Employer reserves the right to supply any items of material or equipment to the Contractor for installation. The Contractor must arrange for taking delivery of and providing safe storage for these materials and he will be held responsible for all damages to or loss of such materials while they are in his custody.

29.0 COMPLETION

Completion shall take place only after the whole installation has been accepted by the Engineer and

(a) All damage that may have been done by the Contractor in the process of the installation has been repaired and made good

(b) All tests of the Mechanical installation has been done and tests results have been submitted to the Engineer,

(c) The completed Certificate of Compliance as specified has been submitted to the Engineer,

(d) All equipment guarantees, if any have been submitted to the Engineer,

(e) The work site has been cleared of all debris and waste materials and left in a neat and tidy condition.

VOLUME 2.1 PART 3: HVAC - DETAILED SPECIFICATIONS

1.0 INTRODUCTION & GENERAL

This Detail Specification complements & qualifies the foregoing standard specifications of material & workmanship. The Standard Specification should be regarded as a basis and guideline, with this Detailed Specification taking preference where any ambiguity is concerned.

In the event of any further technical ambiguity between sections of this enquiry, then the sections will be considered in the following order of priority:

a) Schedule of quantities
b) Project specification
c) Drawings (loose and bound-in)
d) Standard specification

2.0 SITE CONDITIONS

Location:	Motherwell CHC, Gqeberha (Port Elizabeth), Eastern Cape
Altitude:	0 m above Sea Level.

3.0 SCOPE OF WORK

General

The standard specification shall apply unless otherwise indicated in this section.

The drawings issued herewith and listed in the relevant section are to be read in conjunction with the specification and all items mentioned, together with all ancillary equipment necessary for the correct installation, operation and full compliance with the Standards and codes must be provided, notwithstanding the fact that they may not have been included in detail in these documents.

The bidder shall, at the time of bidding, draw the Engineer's attention to any omissions or discrepancy between the specification and the drawings and request from him clarification of details or responsibilities.

If a limited allowance or special conditions are made for the Bid Sum for the supply or erection of any item of the installation, the limit or special conditions shall be defined at the time of bidding.

It is the sole responsibility of the bidder to ensure that all quotations obtained from manufactures and suppliers are complete in their entirety and must include all equipment and accessories necessary for compliance with current practice and the efficient and proper functioning of the installation.

If any such items of equipment, brackets and accessories, etc., have been omitted from a supplier's quotation, or incidental work is necessary, the bidder must include for all such items and work in the bid.

The whole installation shall be in accordance with the latest edition of the Occupational Health and Safety Act: No. 85 of 1993. All regulations framed therein, shall be carried out to the satisfaction of the Engineer.

All equipment offered by the bidder shall be to the approval of the duly appointed Engineer, prior to installation. This standard specification and the supplementary specification with drawings shall be carefully adhered to by the bidder. Equipment installed without the approval of the Engineer will have to be removed at the Contractor's expense and be replaced with officially approved listed items.

The successful bidder will be required to prove to the Engineer that he has qualified personnel on his staff establishment as well as recognised test equipment for the successful completion of a safe

working installation.

The contractor shall employ only skilled artisans and technicians approved by the Engineer who are competent in this type of work. The work shall be carried out in accordance with the standards laid down by the Engineer.
The contracting firm shall be recognised contractor specialising in this field and approved by the Engineer.
The work performed shall comprise the supply, delivery, off-loading, interim storage, installation, testing, commissioning and leaving in good working order of the complete electric access goods only lift installation inclusive of all guarantees as specified herein and the supply of 'AS IS' installation record drawings, Maintenance and Operating Manuals for:

Heating Ventilation and Air Conditioning Systems Overview:

- Ducted in line air ventilation systems,
    - Aluminium weather louvers,
    - Galvanised ducting, transfers, bends etc.
    - Various In line silent fans plug fans,
    - Sound attenuators,
    - Diffusers,
    - Wired on off controllers,

- Split type air conditioning inverter heat pump units,
    - External condenser,
    - Copper piping,
    - Indoor units,
    - Cable wire basket,

The liaison with a Building/Principal Contractor, Electrical Subcontractor, and their Domestic Subcontractors if and when required

Testing and commissioning of all air-conditioning and ventilation system equipment in conjunction with the Fire Detection and Alarm Evacuation Systems Sub-contractor.

This Sub Contract also includes all electrical work for the installations but excludes the power supply to the isolator provided by others.

Notwithstanding any omission in this specification the installations shall be complete in all respects. This condition shall be recognised in the preparation of all working drawings submitted for approval. Further, despite any approval of working drawings given by and on behalf of the Main Contractor the responsibility for correct functioning of the plant during tests, inspection and the maintenance period shall rest entirely with the successful bidder.

The installation shall be strictly in accordance with the approved drawings or such further drawings, modifications, or instructions as may be given by the Engineer concerned, or that are found to be necessary, and such modifications or instructions shall be deemed to be within the specification for the purpose of the bid, and shall not vitiate the contract.

Payment for such modifications will only be made on certification by the Engineer to the effect that such modifications have involved additional expense to the Sub-Contractor.

4.0 PROGRAM

The Sub Contractor shall complete the installation within the time stipulated. The Sub Contractor will be required to report to the Principal Contractor, generally on a weekly basis (or more often if required by the Principal Contractor), progress of work and any difficulties arising, to enable the Principal Contractor to update the programme or forward plan any changes.

The sequence in which the work is to be carried out shall be decided upon in consultation with the Principal Contractor. The Sub Contractor shall thereafter submit an adequately detailed Sub

Contractor's installation programme for approval within two (2) weeks of the Sub Contract being awarded unless otherwise indicated herein after.

This programme must be periodically updated as the work progresses and as may be necessary to meet changing site conditions and alterations to the overall installation programme.

Programmes shall take the form of bar charts, network diagrams and schedules as may be required by the Main Contractor or as applicable, and shall reflect quantities of work as required for supervision purposes and measurements.

As a minimum the programme shall reflect:

- sequence and timing of installation activities.
- sequence and latest event times of major equipment ordering, manufacture and delivery dates.
- sequence and dates for the submission of drawings and samples for approval.
- sequence and dates for factory and site inspections and tests.
- target and achieved work quantities on a weekly, fortnightly and monthly basis.

In preference all work is to be undertaken by staff in the full time employ of the bidder.

All work which is to be undertaken by “Domestic Sub Contractors” of the Sub Contractor will be clearly identified in the bid submission and the Sub Contractors to be used subject to prior approval of the Client and/or Engineer and/or Principal Contractor; failure to comply with this requirement may result in the “Domestic Sub Contractors” being removed from site.

All costs in replacing the undesirable "Domestic Sub Contractor" or any delays incurred as a consequence of this will be entirely for the Sub Contractor's account.

5.0 DESIGN CONDITIONS

Indoor: 24ºC 50% RH

Outdoor: 31ºC DB; 22.8 ºC DB

6.0 VENTILATION SYSTEM DESCRIPTION

6.1 General

The bidder shall allow for programming the work in such a manner as to not disrupt the Main Contractor’s programme. Sequence of work to suit the Sub Contractor's requirements will not be guaranteed nor accepted.

Claims from Sub Contractors arising out of broken work sequences or agreed programmes changed due to contingent requirements, will not be considered unless full motivations for the extra costs are submitted; the motivation for extra costs must justify costs in terms of the accepted programme and any unforeseen and justifiable additional staffing levels required to meet targets revised with insufficient notice. Reallocation of staff and/or acceleration of work will not be reason enough to claim for extra costs unless the Sub Contractor can prove that he has indeed had to pay for staff’s idle time which was not or could not be envisaged at the time of biding and/or drawing up the installation programme and sequence. When claiming for extra cost all out of town cost will be disallowed as it is assumed that the Sub Contractor has fully staffed premises in the vicinity of the site.

The Subcontractor must also assume that work may be required to continue uninterrupted outside of normal working hours and/or for an extended and/or unbroken period of time.

6.2 EQUIPMENT SPECIFICATION

6.2.1 All standard off the shelf ventilation equipment will be natural annodised aluminium unless otherwise specified.

6.2.2 DESIGN CONSTRAINTS

Refer to the drawings provided with this specification for:

Heating, Air Conditioning & Ventilation:

- 2303-M-T-101 HVAC MW

7.0 ELECTRICAL

Overloads shall be adjustable to approximately 25% higher than the relevant motor overload current.

Wiring in panels shall be neatly run in vertical or horizontal lines and each terminal shall be numbered to accord with the relevant wiring and control diagram. Circuit breakers, timers, relays, etc. shall be labelled in accordance with the wiring diagram and the item of plant served.

8.0 OPERATING AND MAINTENANCE MANUALS

8.1 Operating Manuals

Three complete sets of operating manuals shall be supplied by the Contractor, two sets to the Engineer for onward forwarding to the Employer and one for the User Department's use.

Manuals must be compiled in layman's language.

At least one month before commissioning, one draft copy shall be submitted to the Department/Engineer for comments and approval.

Operating manuals shall give a clear description of and the purpose of the installation.

(a) Paper copies of all approved drawings and diagrams.

(b) Detailed description of the different components used in the installation.

(c) On- and off switching procedures.

(d) Guidelines for routine-test to be carried out by the User Department inclusive of the periods during which tests are to be undertaken.

(e) Detailed instructions for procedures to be followed during a fault

The following drawings are required:

- Layout drawings
- Wiring drawings showing wire colour codes and numbers as well as all connections onto terminal strips (markers to be approved by the Engineer) of all plant new and existing.

The following documents are required:

- Full description of the system.
- Operating instructions.
- Installation instructions.
- Commissioning instructions.
- Maintenance instructions, maintenance schedule and trouble shooting guide.

8.2 Maintenance Manuals

Two complete sets of maintenance manuals (Technical) prepared in English, shall be supplied by the Contractor.

At least one month before commissioning a draft copy shall be submitted to the Department/Engineer for comments and approval.

Maintenance manuals shall consist of the following:

(a) A general description of the system.

(b) A general description of the controls.

(c) Schedule of equipment, model numbers, optional extras, modifications, electrical power requirements, etc.

(d) Detailed monthly, quarterly, semi annually and annual preventative maintenance procedures.

(e) Manufacturer's catalogues clearly indicating type, size and model of equipment supplied.

(f) Tabulated commissioning data of all equipment and the system, indicating- as measured and according to specification - requirements.

(g) List of suppliers, addresses and telephone numbers.

(h) List of spare parts for all equipment.

(i) Fault tracing/finding procedures.

The following drawings are required:

- Layout drawings
- Wiring drawings showing wire colour codes and numbers as well as all connections onto terminal strips (markers to be approved by the Engineer) of all plant new and existing.

The following documents are required:

- Full description of the system.
- Operating instructions.

- Installation instructions.
- Commissioning instructions.
- Maintenance instructions, maintenance schedule and trouble shooting guide.

Manuals shall be bound in a firm hard cover.

The information shall be clear and readable and supplied with an index.

The above-mentioned manuals shall be available at first delivery. Delivery of the installation will not be accepted without the manuals.

9.0 TRAINING OF STAFF

The bidder shall allow for sufficient time for instructing the User's appointed responsible persons in the correct operation of all plant and equipment, procedures to be followed in the event of faults etc.

Two sets of instruction manuals shall be provided. Each manual shall comprise of the following sections, bound in a vinyl plastic covered folder with the name of the project typewritten on a card inserted into a clear plastic covered cardholder on the front cover and spine and shall be handed to the Main Contractor on completion of the installation:

- Table of Contents
- Functional Description of Plant (as installed)
- Operation of Plant (as installed – step by step instructions for setting temperatures, etc.)
- Plant and Equipment (a scheduled list of all major plant to include description, make, model number and supplier's name and address).
- Performance Testing Procedures including Test Report
- Maintenance Instructions (in schedule form setting out each item of plant, the description and frequency of maintenance operations required).
- Spare Parts (list of spare parts that shall be required, with detailed description of each part, make, model or part number and supplier's name and address).
- Descriptive Literature (for all items of plant and equipment).
- Record Drawings (of plant as installed to include plant layout drawings showing component location, control and wiring diagrams and schematic piping diagrams).

10.0 GUARANTEE

The entire air-conditioning and ventilation / extraction installation shall be fully guaranteed for twelve calendar months from date of acceptance by the Engineer and contract practical completion date.

During the guarantee period, the Tenderer shall be responsible for the making good of any defects reported by the Tenant. The guarantee shall be ceded to the Superintendent following acceptance of the installation.

11.0 MAINTENANCE

The air-conditioning Tenderer shall be responsible for the maintenance of the entire plant during the guarantee period, as specified in this document. During this period the plant shall be serviced quarterly including filter cleaning and the Superintendent undertakes to provide access to the plant at suitable times during trading hours. Record of all services shall be kept and copies signed by the Superintendent.

12.0 CERTIFICATION ON COMPLETION OF GUARANTEE & MAINTENANCE PERIOD

Included in the pricing for the installation of the package plant is a 12 month quarterly service plan.

In the month prior to the expiry of the guarantee / first twelve months maintenance period, the Engineer shall inspect and, if necessary, retest the installation so as to be able to provide the Superintendent with a certificate, within fourteen days of the guarantee expiry date. This is to confirm that the guarantee has been honoured and that the installation has been properly serviced at required regular intervals by the air-conditioning Tenderer.

13.0 SAMPLES & ALTERNATIVES

Samples (within reason) will be requested by the Engineer and are to be made available on-site for inspection / approval.

The tender prices shall be based on the equipment as specified and not on any alternatives. Should the Tenderer wish to submit prices for alternatives, he shall do so separately, in a letter or similar correspondence, attached to the tender. The use of any alternative equipment, if any, will be evaluated and decided on after tender award, when the costs, etc. will be negotiated with the successful Tenderer.

The Engineer reserves the right to call for prices on alternative equipment subsequent to tender submission.

14.0 SCHEDULES OF INFORMATION

The schedules of information contained in this document consists of 2 sections:
Information supplied by the Engineer (schedules of drawings, etc. as applicable).
Information to be supplied by the Tenderer at tender stage (tender form, information on the makes, types and ratings of equipment and materials offered, schedules of prices and rates for variations, schedules of quantities, etc. as applicable).
Tenderers must provide, at the time of tendering, in the “Schedule of Material Offered”, sufficient details to enable the equipment concerned to be identified without ambiguity.
It is not sufficient for a Tenderer to state “as specified” in the schedules.
Failure to complete these schedules may render a tender invalid.

15.0 DRAWINGS

15.1 General

Generally, the term “detail” shall mean that the drawing is exact in all aspects to what shall be provided. Where the term “illustration” is used, however, it shall be construed that the drawing is to be regarded as a proposal or guideline as to what is to be provided, manufactured or supplied.

15.2 Tender Drawings

Refer to the tender drawing as provided with this document.

15.3 Construction / Workshop Drawings

The successful Tenderer shall submit construction drawings (or detailed catalogues) of the manufactured equipment, such as mounting details, etc., for consideration by the Engineer prior to manufacture/supply thereof.

The Engineers approval of construction or workmanship drawings does not relieve the Tenderer of his responsibility with regards to any of the deviations from the requirements of this contract unless the Engineer has been clearly informed, in writing, of such deviations at the time of submission and the Engineer subsequently gives written approval for the specific deviation. Similarly, the Engineer’s approval shall not relieve the Tenderer of responsibility for errors or omissions in the

construction / workmanship drawings.

15.4 Record Drawings

The Tenderer must prepare record drawings of the completed installation as constructed, indicating cable runs, equipment mounting details, circuiting & distribution board details, sleeve pipe positions, etc.

The contract shall not be deemed as complete until these drawings have been submitted.

16.0 SUPERVISION, WORKMANSHIP AND DELAYS

The work shall at all times, for the entire duration of the contract, be executed under the supervision of a skilled and competent representative of the Tenderer, who must be able and authorized to receive and execute instructions on behalf of the Tenderer. This person must be a registered and accredited person, as described by the OHS Act. It must be noted that the staff complement of the Tenderer shall remain similar throughout the duration of the contract, for all sections of the Works.

In the event that inferior materials or bad workmanship, on the part of the Tenderer, leads to remedial work requiring redesign by the Engineer, the cost of this work, including related professional fees, shall be borne by the Tenderer.

Similarly, should delays in the contract be caused by poor performance on the part of the Tenderer causing the engineer to spend extraordinary time on the project, the extra costs incurred shall be borne by the Tenderer.

These costs will be based on the CESA hourly rate and will be deducted from claims due to from claims which will become due to the Tenderer.

17.0 COMPLIANCE WITH REGULATIONS, STANDARDS AND CODES

The Tenderer shall arrange for all inspections and testing of the installation as required. All notices, fees, including inspection and re-inspection, are the responsibility of the Tenderer and all the relevant costs shall be borne by him.

The workmanship throughout the Works will be to the satisfaction of the Employer. Any materials or workmanship considered as faulty or incorrectly or inadequately erected or repaired, will be substituted, altered or rectified to the satisfaction of the Employer, without additional cost to the Employer.

The Works will be executed in strict accordance with the following:

- All relevant by-laws and regulations of local authorities.
- All relevant SANS, BS and other international standards.
- The Occupational Health and Safety Act of 1993.

18.0 COMMISSIONING AND TESTING

18.1 General

Upon practical completion of this Sub Contract the Sub Contractor shall allow for providing the Engineer with a complete commissioning schedule indicating the actual test results and measurement of all the design or specified data/variables.

Tests to demonstrate the capacity specified and general operating characteristics of all plant shall be made under the direction of the Engineer at any time before the practical completion inspection under conditions imposed by him.

The Sub Contractor shall be responsible for supplying test equipment which is to the Engineer's satisfaction; any costs incurred by the Sub Contractor in supplying adequate instrumentation will be entirely for his account. Test instruments shall be tested for accuracy by an approved laboratory or by the manufacturer and certificates showing the degree of accuracy shall be furnished to the Engineer if required.

On satisfactory completion of all tests and after the completed installation has been inspected and passed as satisfactory by the Engineer, the installation will be accepted as being practically complete and be handed over to the Employer.

The Sub-Contractor shall be responsible for supplying an itemised set of test results for the Engineer's approval; the Engineer may at his discretion request the Sub-Contractor to re run at the Sub Contractor's expense any test which he has not witnessed or with which he feels not satisfied.

The following shall be recorded/measured for each separate installation as specified and installed under this contract:

Description of installation tested;

Date and time of test;

Ambient temperature conditions (measured in the shade):

(a) Dry bulb temperature

(b) Wet bulb temperature

(c) % RH

19.0 BUILDER'S WORK

The onus is on the Tenderer to point out and check the requirements for and positioning and correctness of all builder's work for his services.

20.0 MAKING GOOD

The builder is to be made aware of all works, timeously, relating to the impact of this installation(s). The Tenderer will carry out, in all instances any work to be made good such as damage to, or disturbance of the building installations caused by himself or his employees during the execution of the contract at his own cost.

21.0 SITE MEETINGS

The Tenderer's representative shall be expected to attend an official site meeting at the onset of the project including scheduled technical and site meetings during the contract period. For meetings termed as "technical or site", a site representative for the nominated Tenderer is required to attend and this person must be competent and able to interpret and receive and act on instructions on behalf of the Tenderer.

The Tenderer shall price all relevant P & G costs, overheads, travelling, etc. for these meetings.

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING
HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Bill No. 1 : Preliminary and General				
1.1	Compliance with General Conditions of Contract : Insurances, Sureties, etc as outlined in the Principal Contractor's Preliminaries.				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1,2	Establish on Site and provision of buildings and storage facilities including de-establishment of site, cleaning and tidying up after completion of contract				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1,3	Tools and equipment, Communication, transport.				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.4	Contract Management, Company overheads and supervision of the Works including attendance of site meetings (2 per month)				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1,5	Provision of all drawings and manuals as specified including As-Installed drawings	Item	1		
1,6	Liaison with Local Supply Authority, compliance with OSH Act, Local By-laws and any other statutory regulations	Item	1		
1,7	Any additional item not specifically mentioned or included in the Bills of Quantities which the Tenderer may wish to detail. (Specify)	Item	1		
1,8	Additional testing and balancing at discression of the mechanical engineer.	Item	1		
	Total Carried forward to Summary Page				

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING
HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2,0	**Bill No. 2 : Air Conditioning Equipment**				
	Mid Wall Split Units				
	Supply and install				
2,1	9 000 BTU inverter heat pump mid wall type air conditioner unit, c/w supply & return piping, condensate piping, driers, thermaflex insulation. as well as all hangers & brackets.	No	14		
2,2	12 000 BTU inverter heat pump mid wall type air conditioner unit, c/w supply & return piping, condensate piping, driers, thermaflex insulation. as well as all hangers & brackets.	No	3		
2,3	24 000 BTU inverter heat pump ceiling cassette type air conditioner unit, c/w supply & return piping, condensate piping, driers, thermaflex insulation. as well as all hangers & brackets.	No	2		
	Refrigerant Piping Inverter Splits				
	Supply and install				
	Refrigerant piping for the entire installation, including insulation, hangers, brackets and etc.				
2,4	6.4 mm	m	194		
2,5	9.5 mm	m	182		
2,6	12.7 mm	m	37		
2,7	15.9 mm	m	25		
2,8	19.1 mm	m	0		
	Outdoor Units Bluchem Treatment				
	Supply and install				
	Allow for Blu-Chem chemical oxidization treatment to all external units condenser coils.				
2,9	9000 BTU	No.	14		
2,10	12000 BTU	No.	3		
2,11	24000 BTU	No.	0		
	Condensate Pump and Filter				
	Supply and install				
2,12	Condensate pump with flow rate of 10 l/hr @ 10 m head, c/w inline filter arrangement to fit within trunking elbow.	No	17		
	Condensate Piping				
	Supply and install				
2,13	6 mm diameter clear plastic condensate drain pipe.	m	9		
2,14	20 mm diameter PVC condensate drain pipe, incl. all unions, elbows, hangers and brackets.	m	190		
2,15	40 mm diameter PVC condensate drain pipe, incl. all unions, elbows, hangers and brackets.	m	0		
	Infra Red Remotes				
	Supply and install				
2,16	Remote control, in positions shown.	No	19		
	Carried forward to Next Page				

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MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING
HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Carried forward from Previous Page				
	Trunking Supply and install				
2,17	Cab-strut white PVC trunking incl. covers, elbow, bends and etc or similar approved.	m	15		
	Cable Tray Supply and install				
2,18	Cab-strut 150 mm wide x 1 mm thick light duty hot dipped galvanised cable tray, wire mesh, c/w hanger channel, elbows, bends, and etc or similar approved.	m	162		
	Electrical				
2,18	Connect AC unit to external isolator, provided by others.	no.	19		
	Transport to Site				
2,19	AC units	Sum	1		
	12 Month Service Plan				
2,20	Supply 12 month service plan, for each ventilation system, consisting of 3 quarterly minor services, and 1 final major service at 12 months from Practical Completion	No	19		
	Training				
2,21	Training of staff on operation of units; ; location of equipment and basic day to day maintenance.	No	3		
	Coring Through Brickwork				
2,22	Core through 220 mm brick work, 100 mm diam core.	No	15		
	PC Sum for Repairs				
2,23	PC Sum for unknown repairs to AC units in A&E	PC SUM	1		
	Total Carried forward to Summary Page				

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING
HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3,0	**Bill No. 3: Fresh Air Ventilation System Equipment**				
	Weather Louver Supply and install				
3,1	Aluminium weather louver 1200 x 600 mm, c/w vermin proofing, hinged for front access to filter box.	No.	1		
3,1	Plenum 1200 x 600 x 600 mm, 1200 x 600 mm side and top access.	No.	1		
3,2	Aluminium weather louver 600 x 600 mm, c/w vermin proofing, hinged for front access to filter box.	No.	1		
3,3	Supply and install aluminium weather louver 300 x 300 mm, c/w vermin proofing.	No.	1		
	Sleevel Supply and install				
3,4	1200 x 600 x 400 mm sleeve through wall	No.	1		
3,4	600 x 600 x 400 mm sleeve through wall	No.	1		
	Filter Housing Supply and install				
3,4	1200 x 600 x 50 filter box, with G4 panel filters.	No.	1		
3,5	600 x 600 x 50 filter box, with G4 panel filters.	No.	1		
	Transfers Supply and install				
3,6	1200 x 600 mm to 450 mm diam transfer, incl. flanges.	No.	1		
3,7	450 mm to 500 mm diam transfer, incl. flanges.	No.	2		
3,7	450 mm to 315 mm diam transfer, incl. flanges.	No.	1		
3,8	315 mm diam to 250 mm diam transfer, incl. flanges.	No.	1		
3,9	300 x 300 mm to 250 mm diam transfer, incl. flanges.	No.	1		
3,10	250 mm to 200 mm diam transfer, incl. flanges.	No.	2		
	Sound Attenuator Supply and install				
3,11	Silencer 500-1200 mm c/w flanges	No.	4		
	Total Carried forward to Next Page				

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING
HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Total Carried forward From Previous Page				
	Axial Inline Fan Supply and install				
3,13	450 mm diam axial air supply fan, 11 deg, Q = 1200 l/s at 325 Pa	No.	1		
3,15	Supply and install axial in line silent TD Silent Fan 800/200 air supply fan, Q = 135 l/s at 80 Pa, 25db or less.	No.	1		
	Galvanised Sheet Metal Ducting Supply and install:				
3,16	450 mm diam galvanised sheet metal ducting incl. flanges.	m	26		
3,17	315 mm diam galvanised sheet metal ducting incl. flanges.	m	6		
3,19	300 mm diam galvanised sheet metal ducting incl. flanges.	m	6		
3,19	250 mm diam galvanised sheet metal ducting incl. flanges.	m	39		
3,20	200 mm diam galvanised sheet metal ducting incl. flanges.	m	18		
3,21	160 mm diam galvanised sheet metal ducting incl. flanges.	m	20		
	Elbows Supply and install:				
3,22	450 mm diam 90 deg medium radius galvanised sheet metal elbow incl. flanges.	No.	2		
	Tees Supply and install:				
3,24	450 mm diam galvanised sheet metal Equal Tee incl. flanges.	No.	1		
	Flexible Ducting Supply and install:				
3,26	300 mm diam Flexible connections.	m	3		
3,27	200 mm diam Flexible connections.	m	2		
3,28	160 mm diam Flexible connections.	m	13		
	Total Carried forward to Next Page				

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING
HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Total Carried forward From Previous Page				
	Spigots Supply and install:				
3,29	300 mm diam galvanised sheet metal 45 deg shoe spigot, incl. insulation.	No.	3		
3,30	250 mm diam galvanised sheet metal 45 deg shoe spigot, incl. insulation.	No.	1		
3,31	200 mm diam galvanised sheet metal 45 deg shoe spigot, incl. insulation.	No.	2		
3,32	160 mm diam galvanised sheet metal 45 deg shoe spigot, incl. insulation.	No.	13		
	Fresh air diffusers Supply and install:				
3,33	300 mm diam ceiling diffuser with balancing disc.	No.	3		
3,34	200 mm diam ceiling disc diffuser with balancing disc.	No.	2		
3,35	160 mm diam ceiling disc diffuser with balancing disc.	No.	13		
	End Cap				
3,36	450 mm diam galvanised sheet metal end cap.	No.	1		
3,37	250 mm diam galvanised sheet metal end cap.	No.	4		
3,38	200 mm diam galvanised sheet metal end cap.	No.	5		
	Hangers & Brackets				
3,39	Supply, Install, test, commission and provide 12 month guarantee for all hangers, brackets and etc for extraction ducting all as specified.	No.	115		
	Testing and Balancing				
3,40	Testing and balancing of the system incl. measurement of flow rates, balancing of dampers, setting of variable speed drive c/w report on flow rates achieved etc delivered to engineer.	No.	2		
	Fan Controller				
3,41	2 pole fan controller, on / off wired remotely and installed in conduit and round box provided by others.	No.	2		
	Total Carried forward to Next Page				

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING
HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Total Carried forward From Previous Page				
	Electrical				
3,42	Connect plug fan to isolator or connect cable to isolator, provided.	no.	2		
3,43	24 hr digital timer	no.	2		
	Transport to Site				
3,43	Transport all equipment to site.	Sum	1		
	12 Month Service Plan				
3,44	Supply 12 month service plan, for each ventilation system, consisting of 3 quarterly minor services, and 1 final major service at 12 months from Practical Completion	No	2		
	Training				
3,45	Training of staff on operation of units; ; location of equipment and basic day to day maintenance.	No	3		
	Total Carried forward to Summary Page				

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING
HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
4,0	**Bill No. 4: Extract Ventilation System Equipment**				
	Weather Louver Supply and Install				
4,1	Supply and install aluminium weather louver 300 x 300 mm, c/w vermin proofing.	No.	1		
	Sleeve Supply and Install				
4,2	300 x 300 mm x 300 mm sleeve, incl. flanges.	No.	1		
	Transfers Supply and Install				
4,3	300 x 300 mm to 200 mm diam transfer, incl. flanges.	No.	1		
4,4	250 mm to 200 mm diam transfer, incl. flanges.	No.	2		
	Axial Inline Fan Supply and Install				
4,5	Supply and install axial in line silent 800/200 air supply fan, Q = 145 l/s at 70 Pa, 25db or less.	No.	1		
	Galvanised Sheet Metal Ducting Supply and Install				
4,6	250 mm diam galvanised sheet metal ducting incl. flanges.	m	4		
4,7	200 mm diam galvanised sheet metal ducting incl. flanges.	m	3		
4,8	160 mm diam galvanised sheet metal ducting incl. flanges.	m	0		
	Flexible Ducting Supply and Install				
4,9	200 mm diam Flexible connections.	m	1		
4,10	160 mm diam Flexible connections.	m	0		
	Spigots Supply and Install				
4,11	200 mm diam galvanised sheet metal 45 deg shoe spigot, incl. insulation.	No.	1		
4,12	160 mm diam galvanised sheet metal 45 deg shoe spigot, incl. insulation.	No.	0		
	Total Carried forward to Next Page				

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING
HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Total Carried forward From Previous Page				
	Fresh air diffusers Supply and Install				
4,13	200 mm diam ceiling disc diffuser with balancing disc.	No.	1		
4,14	160 mm diam ceiling disc diffuser with balancing disc.	No.	0		
	End Cap Supply and Install				
4,15	200 mm diam galvanised sheet metal end cap.	No.	1		
4,16	160 mm diam galvanised sheet metal end cap.	No.	0		
	Hangers & Brackets Supply and Install				
4,17	Supply, Install, test, commission and provide 12 month guarantee for all hangers, brackets and etc for extraction ducting all as specified.	No.	7		
	Testing and Balancing				
4,18	Testing and balancing of the system incl. measurement of flow rates, balancing of dampers, setting of variable speed drive c/w report on flow rates achieved etc delivered to engineer.	Lot	1		
	Fan Controller Supply and Install				
4,19	2 pole fan controller, on / off wired remotely and installed in conduit and round box provided by others.	no.	1		
	Electrical				
4,20	Connect plug fan to isolator or connect cable to isolator, provided.	no.	1		
4,21	24 hr digital timer	no.	1		
	Transport to Site				
4,22	Transport all equpiment to site.	Sum	1		
	12 Month Service Plan				
4,23	Supply 12 month service plan, for each ventilation system, consisting of 3 quarterly minor services, and 1 final major service at 12 months from Practical Completion	No	1		
	Training				
4,24	Training of staff on operation of units; ; location of equipment and basic day to day maintenance.	No	3		
	Total Carried forward to Summary Page				

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MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING + NEW REHAB
HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

PROVISIONAL BILL OF QUANTITIES

BILL NO.	DESCRIPTION	AMOUNT
1	**BILL NO. 1 : PRELIMINARY AND GENERAL**	
2	**Bill No. 2 : Air Conditioning Equipment**	
3	**Bill No. 3: Fresh Air Ventilation System Equipment**	
4	**Bill No. 4: Extract Ventilation System Equipment**	
	SUBTOTAL	
	CONTINGENCY 2,5%	
	SUBTOTAL	

REMINDER NOTE

The Total Price including Main Contractor's Mark-up which excludes VAT, must be carried over to the final summary in Volume 1 and all fixed amounts shown in the price schedule must be included therein. No adjustments will be made for any failure by Tenderers to include the fixed amounts in the Total Price for this particular installation.

SUB-CONTRACTOR'S NAME: …….

DATE: ……

SIGNATURE: ……

N.B. The above-named Sub-Contractor is to be employed on this contract. Substitute Sub-Contractors are not acceptable.

The price submitted include all Main Contractor's 'Profit and Mark up BUT Exclude the VAT when transferring price to Volume 1 of the Final Summary Total of the Main Contractor's Document

VOLUME 2.1 PART 5: HVAC - SCHEDULE OF MATERIALS OFFERED

The Tenderer must complete the following schedules and submit them with the priced Bill of Quantities.

The schedules will be scrutinised by the Engineer and should any material offered not comply with the requirements contained in the specification, the Contractor will be required to supply material in accordance with the contract at no additional cost.

NB : Only one manufacturer's name to be inserted for each item.

Item	Material	Make or trade name	Country of Origin
1.	Inverter Mid Wall Split AC Units		
2.	Refrigerant Piping		
3.	Condensate Pumps		
4.	Fresh Air Fans Silent Type		
5.	Ceiling Disc Diffusers		
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			

NOTE : Tenderers are to note that under no circumstances may materials be installed other than offered in the above materials schedule, which has been approved and accepted by the Contractor.

Should the successful tenderer wish to supply materials other than those originally offered, prior written approval must be obtained from the Contractor before any orders are placed.

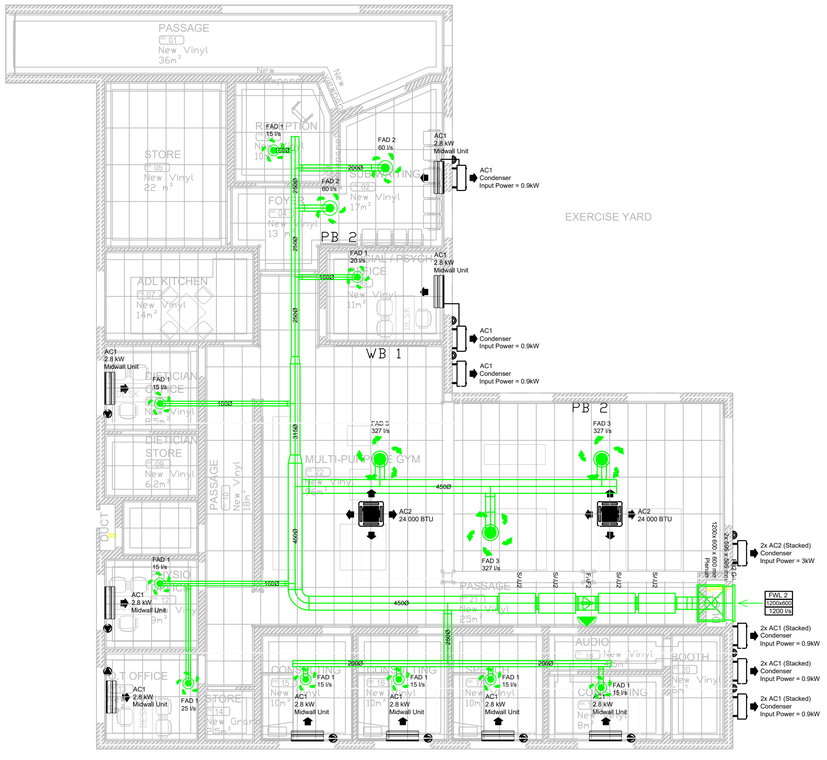
AIR CONDITIONING EQUIPMENT		QTN
AC1	Inverter Mid Wall Split Unit 9000 BTU (2.8 kW) 0.9 kW Input Power	9
AC2	Inverter Ceiling Cassette Split Unit 24000 BTU (7 kW) 3kW Input Power	2
CP1	Condensate Pump	9

SUPPLY AIR VENTILATION EQUIPMENT		QTN
WL1	Aluminium extruded profile weather louver 1200 x 600 mm, hinged, for access to filter housing	1
FB1	Filter Box 1200 x 600 mm, to house 595 x 595 x 48 mm G4 Panel Filter	1
PL1	Plenum 1200 x 600 x 600mm	1
FAF1	4500 Axial Fresh supply air fan; Q = 1200 l/s @ 325 Pa, 11 Deg, 0.9 kW	1
SAU1	LDC Silencer 500-1200	4
FAD1	Supply air ceiling disc diffuser Ø = 160 mm powder coated white	9
FAD2	Supply air ceiling disc diffuser Ø = 200 mm powder coated white	2
FAD3	Supply air ceiling diffuser Ø = 300 mm powder coated white	3

EXTRACT AIR VENTILATION EQUIPMENT		QTN

LEGEND

- Ceiling Concealed Split Unit
- **Ceiling Cassette Split Unit**
- Mid-wall Split Unit
- Condensing Unit (VRV Outdoor Unit)
- Condensate Pump
- Branch Selector Box
- Flexible Duct
- Constant Volume Diffuser
- Electrical Distribution Board
- 15A 3 Pin unswitched socket outlet mounted in ceiling void by HVAC contractor
- **Double pole isolator by Electrical Contractor (2NO)**
- **Triple pole isolator by Electrical Contractor (3NO)**
- **Wired remote control and thermostat**
- Door grille
- **Balancing Damper**
- **Back Draught Shutter**
- **Filter Box**
- **Sweep Fan**



GENERAL NOTES:

REVISIONS			
REV	DATE	INIT.	DESCRIPTION
00	04/03/23	TW.	Issued for information

CLIENT

TITLE

HVAC
EQUIPMENT LAYOUT

REHAB PROPOSAL

CESA
Consulting Engineers South Africa

RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers

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Southernwood,
East London, 5201
E-Mail: office@rnaconsulteng.co.za

P.O. Box 12359
Amalinda, 5252
Tel: 043 742 0041
Fax: 043 742 3883

DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY: T.WARNE

SCALE: 1 :100

DRAWN: T.WARNE

DATE: 08/02/2024

PRINT DATE: 08/02/2024

CHECKED BY: Travis Warne

REGISTRATION No.: 201770017

SIGNED.

DRAWING NO.: 2303-M-T-101 HVAC MWRH

REV No.: B

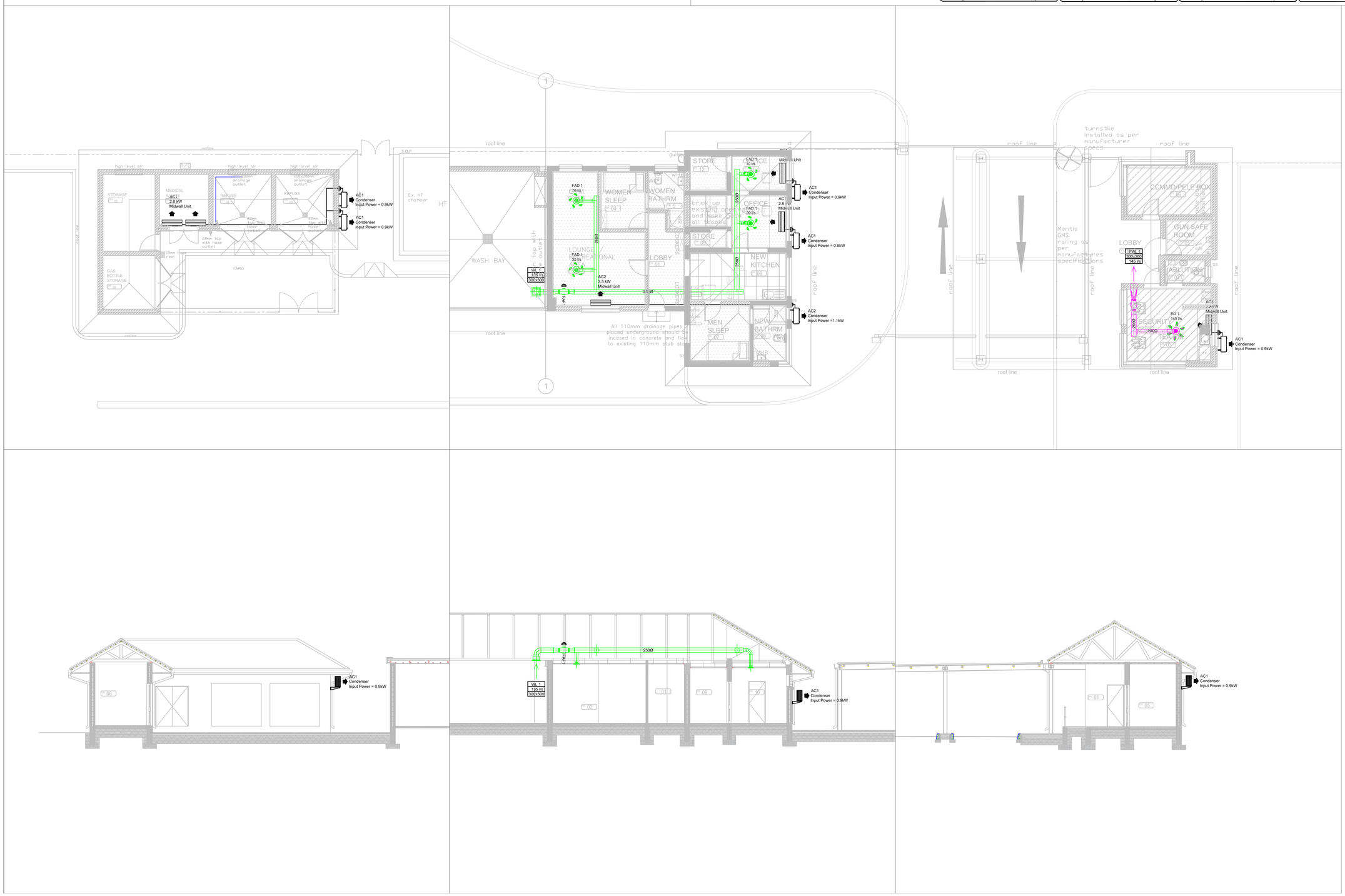
AIR CONDITIONING EQUIPMENT		QTN
AC1	Inverter Head Pump Mid Wall Split Unit 2.8 kW (9 000 BTU)	5
AC2	Inverter Head Pump Mid Wall Split Unit 3.5 kW (12 000 BTU)	1
CP1	Condensate Pump	6

SUPPLY AIR VENTILATION EQUIPMENT		QTN
WL1	Aluminium extruded profile weather louver 300 x 300 mm	1
FAF1	TO Stand air supply air fan 800/200 Q = 145 l/s @ 80 Pa, 0.5 kW 15 A SSO	1
FAD1	Supply air ceiling disc diffuser Ø = 160 mm powder coated white	4

EXTRACT AIR VENTILATION EQUIPMENT		QTN
WL1	Aluminium extruded profile weather louver 300 x 300 mm	1
EAF1	TO Stand air supply air fan 800/200 Q = 145 l/s @ 80 Pa, 0.5 kW 15 A SSO	1
FAD1	Supply air ceiling disc diffuser Ø = 160 mm powder coated white	1

LEGEND

- Ceiling Concealed Split Unit
- **Ceiling Cassette Split Unit**
- Mid-wall Split Unit
- Condensing Unit (VRV Outdoor Unit)
- Condensate Pump
- Branch Selector Box
- Flexible Duct
- Constant Volume Diffuser
- Electrical Distribution Board
- 15A 3 Pin unswitched socket outlet mounted in ceiling void by HVAC contractor
- **Double pole isolator by Electrical Contractor (DPCO)**
- **Triple pole isolator by Electrical Contractor (TPCO)**
- **Fan remote control and thermostat**
- Door grille
- **Balancing Damper**
- **Back Draught Shutter**
- **Filter Box**
- **Sweep Fan**



GENERAL NOTES:

REVISIONS			
REV	DATE	INIT.	DESCRIPTION
00	04/03/23	TW.	Issued for information

CLIENT

TITLE

HVAC
EQUIPMENT LAYOUT

EMS / GATEHOUSE / REFUSE & STORAGE PROPOSAL

CESA
Consulting Engineers South Africa

RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers

7 King Street,
Southernwood,
East London, 5201
E-Mail: office@rnaconsulteng.co.za

P.O. Box 12359
Amalinda, 5252
Tel: 043 742 0041
Fax: 043 742 3883

DESIGN	TENDER	CONSTRUCTION

DESIGNED BY: T.WARNE
SCALE: 1 :100
DRAWN: T.WARNE
DATE: 03/11/2023
PRINT DATE: 03/11/2023
CHECKED BY: Travis Warne
REGISTRATION No.: 201770017
SIGNED.

DRAWING NO.: 2303-M-T-101 HVAC MW
REV No.: B

VOLUME 2.2

MECHANICAL INSTALLATION

FIRE PROTECTION INSTALLATION

VOLUME 2.2 PART 1: FIRE PROTECTION EQUIPMENT - 1 SCOPE OF WORKS

FIRE PROTECTION EQUIPMENT INSTALLATIONS

1. GENERAL

1.1 The Standard for Uniformity in Construction Procurement published in terms of the Construction Industry Development Board (CIDB) Act, 2000 (Act No. 38 of 2000), the Standardized Construction Procurement Documents for Engineering and Construction Works as issued by the CIDB and any other relevant documentation pertaining thereto must be studied and all principles in this regard must be applied to all procurement documentation, practices and procedures.

2. THE CONTRACT

2.1 FIRE PROTECTION EQUIPMENT INSTALLATIONS

The work to be carried out and commissioned by a SAQCC Fire approved installer:

a. Installation of new hose reel, and extinguisher equipment, as per SANS 10400 Section T &SANS 10252,
b. Installation of new galvanised steel water reticulation,
c. Testing and Commissioning, as per SANS 10400 Section T and SANS 10139,
d. Manuals, Drawings, OEM Literature,

2.2 Existing

All installations new. Building Existing.

2.3 Order of The Works

As per the building contractors' program of works.

VOLUME 2.2 PART 2: FIRE PROTECTION STANDARD SPECIFICATION

1.0 GENERAL

1.1 This standard specification applies to, and is to be read in conjunction with the particular technical specifications.

1.2 In so far as the conditions contained herein are at variance with anything contained in the particular specification, the contract shall be interpreted in terms of the particular specification for each particular service.

1.3 Equipment, materials and operational methods, shall comply with the relevant South African Bureau of Standards Specification or the British Standard Specification, wherever such specification exists, whether prescribed or not. Preference will be given to the latest issue of the SANS specification where both such specifications exist, unless otherwise prescribed in this or the particular specification.

2.0 OCCUPATIONAL HEALTH AND SAFETY ACT

2.1 All equipment supplied and installed under the contract shall meet the requirements of the Occupational Health and Safety Act (Act No 85 of 1994, (as amended) and all other relevant statutory requirements and the Contractor shall comply with the requirements laid down by the Inspector of Machinery under this Act.

3.0 DRAWINGS

3.1 The drawings issued with this specification do not purport to show the exact position, size or details of construction of equipment.

3.2 Tenderers must satisfy themselves that the equipment offered by them can be accommodated in the available space and positioned in such a way that access for maintenance, repairs or removal is not obstructed.

3.3 Drawings showing any alternative suggestions differing from the Engineer's design must be submitted with tenders.

3.4 Within four weeks of signing of the contract (or date of order) the successful tenderer shall submit to the Engineer or his duly appointed representative the following working drawings:

3.4.1 Plant room lay-out showing total operating mass of equipment and the positions and sizes of the water and drain connections required.

3.4.2 Construction details of all items manufactured by the air conditioning and/or ventilation Contractor, such as air plenums, duct work, bases etc.

3.4.3 Dimensions and positions of all holes through walls, slabs, etc., and any amendments to the sizes or positions of return grilles, louvred openings, etc., indicated on the Engineer's drawings.

3.5 Approval by the Engineer of drawings submitted by the Contractor shall not relieve him of his liability to carry out the work in accordance with the requirements of the contract documents.

3.6 Positions and sizes of return air grilles, louvred openings, openings through reinforced concrete beams and slabs, etc., as indicated on the drawings shall be adhered to as far as possible. Amendments will only be considered if absolutely unavoidable.

4.0 MANUFACTURER'S RATINGS

4.1 All equipment such as fans, compressors, cooling towers, pumps, etc., shall be operated well within the manufacturer's ratings. Equipment offered for use beyond these limits will not be considered.

4.2 Tenderers must submit manufacturer's ratings of all equipment offered. Ratings shall be given in the SI system.

5.0 POWER, WATER AND DRAIN CONNECTIONS

5.1 Power, water and drain points in the plant rooms will be provided to a point by others.

5.2 All plumbing between equipment and water and drain points shall form part of the contract.

6.0 NOTICES

6.1 The Contractor shall supply and install all notices and warning signs that are required in terms of the Occupational Health and Safety Act, by local by-laws or regulations and by these documents. This includes notices prohibiting entry to un-authorized persons, etc.

6.2 A log-book and log-book stand must be provided for each plant room. This must take the form of an A5 size hard cover note book fixed by a light chain through the top left-hand corner to a writing surface.

7.0 WELDING

7.1 Welding shall be carried out in accordance with the current edition of SANS 044 Parts 1 to VII where applicable.

7.2 All welded fillet or butt joints shall be free from porosity, cavities and entrapped slag. Joints shall be ground smooth if required for aesthetic reasons only. If strength is required, they shall not be ground.

7.3 The joints in the weld run, where welding has been recommenced, shall be as smooth as possible and shall show no pronounced hump or crater in the weld surface.

7.4 The profile of the weld shall be uniform, of approximately equal leg length and free from overlap at the toe of the weld. Unless otherwise specified the surface shall be either flat or slightly convex in the case of fillet welds and with a reinforcement of not more than 3 mm in the case of butt welds.

7.5 The weld face shall be uniform in appearance throughout its length.

7.6 Filler metal electrodes shall be of an approved type for the material being used and shall be kept in a dry condition. All electrodes shall conform to SANS 455.

7.7 Only welders in possession of a valid approved competence certificate shall be employed.

7.8 When pipes are welded, tenderers must allow for pipe joints (where chosen by the Engineer's Representative) to be X-ray tested by the SANS or other approved body for sound welding at the Contractor's expense or for joints to be cut for examination purposes. After the removal of these joints, the piping must be made good by the Contractor. Should any of the welds prove unsatisfactory, the Contractor may be called upon, at his own expense, to have all welds examined by X-ray. The X-ray examination shall be carried out by the South African Bureau of Standards or other approved body.

7.9 All welds must show proper fusion.

8.0 GALVANISING

8.1 All hot dip galvanizing shall be carried out in accordance with SANS 934 and SANS 763 where applicable.

8.2 Mild steel plate and sections shall be of good commercial quality, or higher grades, best suited for galvanizing. The materials shall be free from slag or coarse laminations, fine fissures and rolled-in impurities.

8.3 Castings shall be sound, dense and clean, and free from distortion, porosity, carbon and slag

enclosures, blow-holes, and other injurious conditions.

8.4 Welding flux shall be chipped away and all welds wire brushed before galvanizing.

8.5 The surfaces to be galvanised shall be free from paint, oil, grease, and similar impurities.

8.6 All exposed surfaces including welds shall be thoroughly sand blasted prior to galvanizing.

8.7 The Engineer shall have the right to inspect all steel components before galvanizing, and shall have the right to reject or ask for remedial treatment of any material which is considered to be unsuitable. This applies particularly to welds.

8.8 The galvanised coating shall be smooth, adherent, continuous and free from black spots or flux stains.

8.9 Globular extra-heavy deposits of zinc which interfere with the intended use of the material will not be acceptable. Excessively protuberant lumps and nodules shall be removed by hot wiping or by the skilful application of mechanical means, however, there shall remain a sufficient minimum thickness of unbroken zinc coating. Flaws on small parts and working surfaces shall be repaired only by stripping and re-dipping. The zinc bath shall contain not less than 98.5% pure zinc.

8.10 The deposits expected from galvanised coatings shall be as follows: -

MATERIAL THICKNESS	COATING GRAMS PER m2	APPROXIMATE THICKNESS
Bolts and Nuts	275 - 300	0,033 - 0,036 mm
1,25 mm to 2 mm	400	0,056 mm
2 mm to 5 mm	535	0,07 mm
5 mm and over	760	0,108 mm

9.0 COUPLINGS

Couplings shall be aligned by means of a clock gauge and the results entered in the commissioning data included in the Operating and Maintenance manuals.

10.0 BEARINGS

10.1 ANTI-FRICTION

10.1.1 Anti-friction bearings shall include all bearings which provide rolling contact between one or more sets of hardened steel balls or rollers and the hardened steel rings or raceways.

10.1.2 Anti-friction bearings shall be of approved manufacture.

10.1.3 To facilitate maintenance, spares inter-changeability and standardisation, anti-friction bearings of standard design and manufacture shall be employed. All anti-friction bearings shall be provided with greasing facilities in accordance with the manufacturer's requirements.

10.2 BUSHED BEARINGS

10.2.1 Only where specifically stated and in cases of low velocities and light loads in moisture free conditions will bushed bearings be accepted. All bushed bearings shall be made of an approved bearing metal composition which has good anti-friction qualities and is capable of withstanding

severe usage.

10.2.2 All bushed bearings shall be provided with lubrication facilities to ensure adequate lubrication and shall be properly grooved to distribute the lubricant uniformly over the bearing surfaces. Grooves shall not be cut into the journal, but always into the surrounding bush. The edges of all chambers and grooves shall be rounded to avoid sharp corners and to facilitate the introduction of the oil or grease between the journal and the bearing metal.

10.3 SELF-LUBRICATING OR OIL-LESS BEARINGS

10.3.1 Self-lubricating or oil-less bearings shall only be used on application of light loads and low velocities in moisture free and low humidity and conditions and where access to bearings is difficult and likely to be neglected during servicing.

10.3.2 The type of bearing metal composition used shall have friction and wear resistant properties akin to those of grease lubricated bushed bearings.

11.0 GENERAL MACHINERY PROTECTION

11.1 COUPLING AND SHAFT GUARDS

11.1.1 All high-speed couplings, projecting shaft ends and every dangerous moving part of machinery within normal reach of a person shall be protected by a guard manufactured from not less than 1,5 mm mild steel plate.

11.1.2 The guards shall be neatly formed and securely fixed in position.

11.2 BELT GUARDS

11.2.1 All belt or rope drives shall be adequately protected by a belt guard.

11.2.2 The guard shall be manufactured from 25 mm wire mesh or open type expanded metal, securely braced and stiffened with light rolled steel sections and bolted in position. They shall be in accordance with the Occupational Health and Safety Act of 1994 (as amended).

11.3 CHAIN DRIVES

11.3.1 All chain drives shall be fitted with sheet chain cases and lubrication facilities to the chain manufacturer's recommendations. All joints shall be dust tight and arranged for convenient installation and dismantling.

11.3.2 Each chain case shall be fitted with a hinged inspection door, drain hole and plug.

12.0 QUALITY OF MATERIALS

12.1 Only materials of high quality shall be used throughout and shall be subject to the approval of the Engineer.

12.2 All materials, where applicable, shall conform in respect of quality, manufacture, tests and performance, with the requirements of the SANS standards, or, where no such standards exist, they shall conform with the appropriate current specification of the British Standards Institution. Materials manufactured in South Africa shall be used wherever possible.

12.3 Imported materials shall comply with the requirements of the relevant SANS or BS Specifications, although these materials need not necessarily bear the SABS mark.

12.4 All materials shall be suitable for the site conditions. These conditions shall include weather conditions as well as prevailing conditions during installation and subsequent use.

12.5 Should the materials or components not be suitable for use under temporary site conditions the Contractor shall provide at his own cost, suitable protection until these unfavorable site conditions cease to exist.

13.0 MAINTENANCE INSTRUCTIONS

13.1 As requested in the particular specification the Contractor shall provide operating and maintenance manuals/instructions at the time of hand-over of the installation.

13.2 The manuals shall include the following:

13.2.1 Maintenance instructions for all components of the plant which shall include maintenance items required over and above those included in the maintenance schedules attached to this specification, troubleshooting guide, part numbers of all replacement items, capacity curves of pumps, fans and compressors, belt sizes, types and lengths, serial numbers of all principal pieces of equipment, etc.

13.2.2 The names, addresses and telephone numbers of manufacturers or their agents.

13.2.3 Receiver test certificates.

13.2.4 A complete set of the "as built" drawings reduced in size to fit the manuals.

13.3 The operating and maintenance instructions specified above shall be obtained from the equipment manufacturer and where no such manuals exist, they shall be compiled by the Contractor to the best of his ability.

13.4 The contract shall be considered incomplete until all tests have been conducted to the satisfaction of the Engineer and all drawings and manuals have been handed over.

14.0 MAINTENANCE, SERVICING AND GUARANTEE

14.1 MAINTENANCE AND SERVICING

14.1.1 The Contractor shall be responsible for all maintenance and servicing of the installation during the 12-month guarantee period in accordance with the service schedules attached to this specification. Such additional items as required by the manufacturer of the equipment shall be included. (See also clause 13.2)

Four (4) services are required during this period on dates to be agreed at the first delivery inspection. The final service shall be carried out approximately 14 days before final delivery and expiry of the guarantee.

The contractor shall complete the service schedules and submit copies thereof together with his invoice for the servicing to the engineer after each service.

14.1.2 During the 12-month guarantee period the Contractor shall make good any defects due to inferior materials and workmanship and maintain all plant and equipment in perfect operating condition.

14.1.3 The Contractor shall maintain the plant log book on site in which he shall record, sign and date all work carried out at each inspection as well as log all temperature and pressure readings.

14.1.4 The Contractor shall allow for all expendable materials necessary for servicing such as lubricating oils, grease, refrigerant, cleaning materials etc.

14.2 GUARANTEE PERIOD

14.2.1 The CONTRACTOR shall unconditionally guarantee all new plant and equipment (machinery) for a minimum period of twelve (12) months from the date of hand over to the Engineer.

If the CONTRACTOR or his supplier has a standard guarantee which exceeds the minimum warranty called for, the remaining portion of such extended warranty must be ceded to the client.

14.2.2 The guarantee shall cover the performance of the WORKS and any defects due to inferior materials and/or workmanship, fair wear and tear excepted, and the CONTRACTOR shall repair any such

defects without delay.

This guarantee shall include malfunction, and water, refrigerant gas, oil, or air leaks, and all adjustments.

14.2.3 Should the performance of any part of the complete WORKS become unsatisfactory so as to become detrimental to its functional use, the CONTRACTOR shall replace any such part or the complete WORKS with equipment as prescribed by the Engineer.

14.2.4 If any such defects are not remedied without delay, the Engineer reserves the right to have such defect repaired at the risk and cost of the CONTRACTOR by another CONTRACTOR whom the Engineer deems to be proficient in the WORK. this to be without prejudice to any rights the Engineer has against the installation CONTRACTOR. The Engineer will give written notice to the installation CONTRACTOR of such instances where he appoints another CONTRACTOR to remedy defects in the WORKS.

14.3 PREVENTIVE MAINTENANCE SERVICES.

Preventive maintenance servicing of plant and equipment shall be carried out in accordance with the maintenance schedules and programs to be supplied by the Engineer. Copies must be made as required of these schedules.

15.0 ELECTRICAL EQUIPMENT AND INSTALLATION

15.1 Unless otherwise stated in the particular specification tenderers must allow in their price for the complete electrical installation and wiring.

15.2 All electrical equipment and wiring shall be in accordance with the current issue of the Standard Wiring Regulations (SANS1 0142) (as amended).

15.3 Three phase power will be provided by others in the plant room.

15.4 Ammeters and pilot lights shall be provided for electric heaters.

14.5 All motors over 5 kW shall be provided with an approved electronic type motor protection unit.

15.6 In conventional field assembled plants lighting shall be provided for filter, coil and fan chambers, etc and shall comprise of bulk-head fittings permanently fixed to the walls or ceiling and earthed directly to the main earthing bar of the switchboard by means of a 4 mm^2 bare copper earth continuity conductor, in addition to being earthed by means of the continuity of the conduit as specified.

15.7 A single phase power point will be provided in the plant room by others for this lighting.

16.0 AUTOMATIC CONTROL SYSTEMS

16.1 Unless otherwise specified either electric or electronic controls may be offered. All control devices shall perform the functions indicated and operate in the required sequence.

16.2 The performance of controllers shall be stable under all conditions and shall be such that an aperiodic recovery of the controlled variable is obtained following a disturbance. Means of adjusting the control loop stability, such as adjustable proportional bands, adjustable reset rates etc., shall be provided on controllers when applicable.

17. DRIVES

17.1 Compressors and pumps shall be direct coupled to their driving motors.

17.2 The drives between centrifugal fans and motors shall be by means of grooved pulleys and V-belts.

17.3 V-belt drives shall be designed in accordance with CKS 332. Motors shall be mounted on slide rails for adequate belt tensioning and replacement.

17.4 All drives shall be protected by stout 25 mm wire mesh guards and shall be in accordance with the Occupational Health and Safety Act of 1994 (as amended).

18.0 EQUIPMENT BASES

18.1 Bases for centrifugal fans, compressors, air cooled condensers, air compressors, pumps and motors etc., shall consist of reinforced concrete cast into sheet metal formers at least 150 mm deep.

18.2 Bases shall be reinforced with at least 13 mm reinforcing bars located at 150 mm centers each way.

18.3 The mass ratio between bases and equipment shall be at least 1:1 for fans and 1,5:1 for pumps.

18.4 Concrete bases for the pumps shall be large enough to support pipes and fittings between the pumps and flexible connections.

18.5 Bases generally shall be large enough to accommodate the motors and driven equipment. Equipment shall be bolted onto the concrete inertia base.

18.6 Spring isolators shall be installed between concrete inertia bases and floor plinths and between the cooling towers or evaporative condensers and floor plinths.

18.7 Structural steel bases shall be provided for the cooling towers and evaporative condensers if their framework does not permit point support.

18.8 Either free standing stable spring or caged spring with snubber may be used. Spring isolators shall be installed with leveling bolts and shall incorporate 6 mm thick ribbed neoprene acoustical pads bonded to the base.

18.9 Spring diameters shall be large enough to prevent excessive rocking of equipment during start-up and normal operation.

18.10 Isolators shall be chosen to give a static deflection corresponding to a ratio of 3:1 of the lowest disturbing frequency to the natural frequency of the mounting.

18.11 Bases and spring isolators shall be arranged to give a clearance of approximately 25 mm between the underside of the bases and floor plinths.

18.12 Floor plinths of sufficient height shall be installed under all equipment by the air conditioning contractor. The plinths shall be large enough to accommodate the concrete inertia bases and spring isolators. Floor plinths shall also be provided under items of equipment which do not require concrete inertia bases such as cooling towers, air plenums, etc. The plinths under the air plenum shall be at least 100 mm higher than the finished floor level in the plant room.

19.0 RUNNING OF PIPES

19.1 Pipes and ducts shall be installed in accordance with the drawings issued with the supplementary specification.

19.2 The drawings are schematic and do not purport to show the exact positions of pipes nor the details of construction and installation. All final dimensions must be checked on site before the fabrication of piping sections.

19.3 Pipe sleeves with at least 6 mm clearance filled with a resilient material shall be provided where refrigerant tubing or water piping passes through walls or slabs.

19.4 Where beams, stanchions or other obstructions interfere with the straight running of pipes or ducts, suitable offsets shall be provided or changes in the section of the duct made, without altering the cross-sectional area.

19.5 Tenderers should make themselves conversant with complete drawings of the building in order to determine the number of such offsets or changes in section and the positions in which they will be required. Due allowance for these shall be made in the tendered price.

19.6 A complete set of drawings of the building may be inspected at the office of the Architect.

20.0 PAINTING

20.1 All exposed galvanised sheet metal work in plant rooms, air conditioned and ventilated spaces, basements, corridors etc., shall be painted.

20.2 Ducts shall be identified by coloured symbols as specified in clause 6 of SANS 0173-1980.

20.3 The temporary white rust preventative compound on new galvanised sheet metal shall be removed by means of washing, brushing and if necessary, abrasion with a special solvent or compound used for this purpose. The surface shall be well rinsed and dried. It shall then be painted with one coat of zinc dust/zinc oxide paint to SANS 910 or one coat of calcium plumbate primer to SANS 912 followed by one under coat to SANS 681 type II and one coat high gloss enamel paint to SANS 630, Grade I, as top coat, the colour of which will be determined by the Engineer.

20.4 The entire air-conditioning unit casing, including galvanised iron eliminators, sumps, drip pans, fans etc., shall be painted internally with two coats of epoxy-tar paint to SANS 801, type II. The white rust preventative compound on galvanised iron shall be removed as specified above before the paint is applied. Angle iron framework shall be similarly painted with epoxy paint before side covers are fitted.

20.5 Ferrous cooling tower and evaporative condenser casings, including galvanised iron eliminators sumps and fans and internal areas of connecting ductwork shall be internally painted as specified above. Externally the casings shall be painted as specified in clause 48.3. Factory painted equipment will also be acceptable.

20.6 Exposed hot water piping with canvas covered insulation shall be painted two coats of bitumen aluminium paint to SANS 802.

20.7 Exposed uninsulated galvanised piping shall be thoroughly degreased. In case a detergent is used, the surfaces shall be well rinsed and dried. It shall then be painted with one coat of zinc dust/zinc oxide paint to SANS 910, or one coat of calcium plumbate primer to SANS 912, followed by either one undercoat to SANS 681, type II, and one coat high gloss enamel paint to SANS 630, Grade I, as topcoat or two coats of PVA to SANS 634, Grade I.

20.8 Uninsulated black piping, flat-iron, angle-iron and rods for supports, brackets, duct stiffeners, etc., shall be painted on all sides with a zinc chromate primer to SANS 679, Type I followed by two coats of enamel paint to SANS 630, Grade I.

20.9 Where specified in the supplementary specification aluminium shall be painted with a wash primer to SANS 723, followed by a zinc chromate primer to SANS 679, Type I, and two coats of enamel paint to SANS 630, Grade I.

20.10 Motors, compressors, pumps etc., shall be painted light grey. Belt guards shall be painted bright red.

20.11 Before any painting is applied the steel surfaces shall be prepared according to SANS 064, (Code for preparation of steel surfaces for painting.)

20.12 Where specified in the particular specification steel surfaces shall be cleaned and then treated by the hot phosphate process to a minimum weight of 1,6 gr/m^2 coating followed by two coats of baking enamel to SANS 783, Type I.

21.0 GENERAL REQUIREMENTS FOR FIRE INSTALLATIONS

AII fire pipe installations shall adhere to the technical and particular specifications of the Employer, and shall include the following general requirements:

21.1 Piping shall conform to the requirements of SANS.

21.2 Pipes shall be cut accurately to measurements established on site and installed without springing or forcing and properly clear of windows, doors and other openings. All piping shall be reamed after cutting and shall be clean, straight and free of defects.

21.3 Drawings are generally diagrammatic and indicative of work to be installed. Routing and arrangement of piping shall be as indicated, subject to site conditions and the appropriate requirements of SANS rules.

Clashes with other trades shall be avoided and fittings, valves, drain points, etc shall be located so as to ease access, maintenance and operation of the system. Note that required offsets, fittings, valves, drains, etc are not necessarily indicated.

21.4 Pipe runs shall be straight and direct as possible, in general forming right ankles with or parallel to walls or other piping, and neatly spaced. Piping shall be installed so that there is sufficient clearance between finished coverings of piping, fittings and adjoining work.
Sleeves shall be provided where piping passes through partitions, beams, slabs, etc.

21.5 Valved and capped drain points shall be provided at all low points in the piping network.
Unions or flanged connections shall be provided to aid dismantling of the piping should it be required.

21.6 No cold springing shall be allowed. Pipe sections shall be fabricated/cut to length accurately in order to avoid cold springing.

21.7 Where necessary, adequate temporary supports shall be installed during erection so as not to overstress piping or equipment to which piping is connected.

21.8 All supports shall conform to the requirements of SANS, and no perforated straps or strip steel shall be used.

21.9 Piping which is subject to vertical movements shall be provided with springs or other suitable supports.

21.10 Hangers shall be installed in such a manner that they cannot be disengaged by any pipe or support steel movement.

21.11 No pipe shall be suspended from another pipe except if specifically called for on the drawings or in the particular specification (Part 3).

21.12 The Contractor shall be responsible for selecting the sizes and types of pipe hangers, supports and support devices not shown on the drawings, but which are necessary for the completion of the installation. Support spacing shall be as specified in paragraph 23.0 The Contractor shall supply details of all calculations to the Engineer for scrutiny together with two marked up prints showing the location and types of all supports/pipe hangers to be installed prior to ordering and commencing installation.

21.13 During construction all pipe ends shall be kept plugged to prevent any ingress of dirt, rubble etc.

22.0 PIPING

22.1 Steel piping shall be solid drawn, heavy grade steam quality piping conforming to ASTM/A106 Schedule 40 or to B.S. 1387/1967 (heavy quality) or SANS 62/1971. In all instances the latest editions and amendments to these specifications shall apply.

In plant rooms piping may be welded, prefabricated off-site to aid in installation and connection to pumps, storage tanks, etc. Welding shall be carried out as specified in paragraph 7.0 of this specification.

Generally, pipe sections shall be screwed together using malleable iron threaded fittings, class 150 and 300 in accordance with ASME B 16.3. Only eccentric fittings shall be used

at changes in pipe size. No bushing shall be used in lieu of reducing fittings. Screwed joints shall be screwed up tightly using an approved jointing compound such as PTFE tape. Hemp joints will not be accepted.

Pipes joined with grooved fittings (e.g., Klambon or Victaulic) shall be joined by a listed combination of fittings, gaskets, and grooves. Grooves cut or rolled on pipe shall be dimensionally compatible with the fittings and pressure at which the system is to operate.

Where flanges are used, they shall be in accordance with ASME B16.5. Steel slip-on boss flanges for welding shall have a nominal pressure at least 10% in excess of the maximum fluid pressure. Where equipment is supplied complete with flanges not in accordance with the above specification, a matching weld-on flange is to be used for connecting up such equipment. Bolts in flanges are to be high tensile steel and of the correct length such that no more than 1,5 clear threads protrude beyond the nuts after tightening to the correct torque. In flanged joints new gaskets shall be used for every assembly operation unless such an assembly is intended solely for initial fitting. Gasket material shall be fibre composition or similar material suitable for the system operating pressure and temperature.

22.2 Underground piping shall be class 16 HDPE piping and weld-on flanges in accordance with SANS 0533-2

Pipes shall be laid on a 100 mm sand-bedding cradle and covered with 300 mm sand before backfilling. The total cover over the piping shall be a minimum of 900mm generally and 1100mm under roadways. All backfilling shall be to the Engineers approval.

Where required thrust blocks shall be cast between the pipe and the undisturbed trench material. At thrust blocks the pipe bend shall be wrapped with a "Densopol 80 HT Tape" (or equal and approved) so that no concrete comes into direct contact with the HDPe piping.

All underground piping shall be pressure tested prior to it being covered.

23.0 PIPE SUPPORTS AND HANGERS

All necessary pipe hangers, brackets, supports, stanchions and anchors shall be designed, supplied and installed by the Contractor, in accordance with SANS.

23.1 Maximum pipe support spacing shall be as follows:

Pipe Diameter	Max support Spacing
20 mm	3 m
25 mm	3.6 m
32 mm	3.6 m
40 mm	4.5 m
50 mm	4.5 m
65 mm	4.5 m
80 mm	4.5 m
100 mm	4.5 m
150 mm	6 m
200 mm	6 m

The contractor will be required to ensure that the hangers/supports selected are conservatively rated for the carrying capacity required. (Refer to paragraph 21.12).

23.2 There shall be at least one pipe support for each mechanical pipe joint .

23.4 Components of any pipe support shall be securely attached to each other by means of bolts or threaded rod with nuts and washers.

23.5 All components of all pipe supports shall be galvanized.

24 VALVES AND FITTINGS

All valves. check valves, shut-off valves. etc. shall be of a pressure class greater than or equal to pressure class of the piping.

All valves controlling water supplies for fire systems or portions thereof, should be accessible to authorized persons during emergencies. Permanent ladders, chain-operated hand wheels, or other acceptable means should be provided where necessary.

Outside control valves shall be located within a fenced enclosure under the control of the owner, sealed in the open position, and inspected weekly as part of an approved maintenance and safety procedure.

24.1 Valves greater than 50mm diameter shall be of the butterfly type with resilient rubber seats. 100 mm and 150 mm diameter valves shall be equipped with gear operated closing mechanism. Valves shall conform to BS 5155 and shall be KERR fig. no 104A or similar or equal and approved.

24.2 Valves up to and including 50mm diameter shall be of the screwed and socketed type with bronze body and gated with non- rising spindle.

24.3 Valves shall be labelled as follows:

(a) Main stop valves, control valves, etc shall be labeled by means of rust-free metal tags indicating their purpose and the section they isolate, if isolating valves.
(b) The tags shall be securely fixed to the valve and shall be clearly legible.
(c) All letters on labels shall be engraved or punched. No painted or plastic embossed labels will be accepted.

24.4 Strainers shall be of the Y-type with cast iron body, stainless steel or bronze strainer element and shall be equipped with flanged ends. The hole sizes of the strainer element shall be maximum 1 mm Ø and be removable without dismantling of pipe-work. Strainers shall be suitable for a temperature of up to 90ºC at a 1 600 kPa pressure rating and installed with the element facing downwards or a maximum of 45º sideways.

24.4 Non-return valves shall be of the spring-loaded wafer dual flap plate type fitted between two flanges. They shall be equipped with a cast iron body, aluminium bronze plates, stainless steel springs and neoprene seals on the plates. The valves shall be suitable for working pressures of up to 1 600 kPa.

25 PUMPS

26.1 Pump sets shall conform and be installed as detailed in SANS and these specifications. The number and type of pump sets will be detailed in the Particular Specification (Part 3) and will comprise some or all of the following

(a) Electrical driven jockey pump set
(b) Electrical driven main sprinkler/fire pump and drive.
(c) Diesel driven main sprinkler/fire pump and drive.
(d) Sprinkler/fire pump starting arrangement.
(e) Electric and Engine drive controllers and ancillary equipment.
(f) Water flow test devices.
(g) Fuel storage and piping

The pump sets shall be, installed, tested, commissioned and certified in accordance with SANS and the Local Authority's requirements.

26.2 Prior to ordering and installation, the Contractor shall provide a full set of plans and detailed data describing the following for scrutiny and/or approval by the Engineer and Local Authority:

(a) Pumps
(b) Pump drivers

(c) Drive controllers
(d) Power supply
(e) Starting arrangements
(f) Piping and fittings
(g) Suction and discharge connections
(h) Water supply and/or storage conditions

Each pump unit shall be provided with certified test curves from the manufacturer showing brake horsepower, flow and head capacities. The Contractor shall provide this information to the Engineer and Local Authorities for approval.

26.3 The Contractor shall perform and certify a full field acceptance test on the completed installation in accordance with SANS. This test shall be witnessed by the Engineer and Local Authority.

26.4 The following information shall be embossed on a plate fixed to each pump:

(i) flow capacity (l/sec);
(ii) pump head (metres water gauge);
(iii) impeller size;
(iv) pump speed
(v) required motor power;
(vi) make of pump;
(vii) model;
(viii) date of purchase.

26.5 Pumps shall be of the centrifugal end-suction type listed for fire protection service. It shall be possible to remove the impellers without removing the pump from its mountings.

Pumps shall comply with the following requirements:

(a) Impellers shall be double entry radial types of bronze or cast iron.
(b) Casings shall be of cast iron with renewable casing wear rings. The casing wear rings shall be made of cast chrome steel.
(c) Shaft seals shall be of the mechanical type.
(d) Bearings shall be grease lubricated anti friction types.
(e) Pump shafts shall be of stainless steel.
(f) An auto priming system shall be provided.
(g) Pump cooling devices shall be provided to prevent over heating of pumps when operating at closed head.

26.6 Characteristic curves showing capacity, head, efficiency NPSH, power required and operating range shall be submitted to the Engineer at tender stage. Prior to installation, a complete set of test certificates shall be submitted for approval to the Engineer and Local Authority indicating all performance characteristics of the pump to be installed.

26.7 A pressure gauge must be provided downstream of the pump outlet backpressure valve and on the pump suction side.

26.8 An approved flow test device and pipe connection shall be provided in the delivery line downstream of the non-return valve, in order to carry out a running flow/pressure test on the pump at approximately full load when the test valve is fully open. The test pipe shall be piped back to the water tank.

26.9 Pumps shall be mounted on mild steel bases, adequately corrosion protected by hot dip galvanizing after manufacture. Pump bases shall be filled in with concrete and properly secured to the floor.

27.0 DRIVE MOTORS

27.1 Electric drive motors shall be drip proof conforming to BS 2613 and BS 170. Windings shall at least be according IP55 of IEC 144. High temperature permanent sealed bearings shall be used. Motor

speeds shall preferably be limited to 1450 rpm but shall not exceed 2950 rpm.

27.2 Diesel engines shall be naturally aspirated air cooled types capable of being started without the use of wicks, cartridges, heater plugs or ether, at an engine room temperature of 4ºC. They must be capable of accepting full load within 15 seconds from receipt of the signal to start.

27.3 Engines shall be capable of operating continuously at full load at the site conditions for a period of 8 hours. The Contractor supplying the pumping set shall supply to the Engineer and Local Authority a statement giving the 8-hour power rating of the engine at speeds of 1000 rpm, 1400 rpm, 1800 rpm, 2 200 rpm, 2600 rpm and the maximum speed. Any of the speeds quoted which are in excess of the maximum speed rating of the engine may be omitted and the maximum speed and corresponding rating shall be given.

27.4 Speed and Number of Strokes

The engine must be of the solid injection, compression ignition type, with a running speed for reciprocating engines up to 750 kW not exceeding 1500 rpm. Generally, engines of the four stroke, industrial type, designed for stationary operation are preferred. Two-stroke engines of the pump assisted uniflow scavenged type will be considered if their specific fuel consumption (kg fuel used per kW hour) is equivalent to or better than that of the equivalent four stroke engine.

27.5 Fuel Classification

The engine shall be rated for diesel fuel as normally available in South Africa and in compliance with SABS 342 -1969 or B.S.2869 -1970, Class A1 , (as amended) for diesel fuel with a minimum octane rating of 40 and nett calorific value of 10000 kcal/kg (39600 kJ/kg).

27.6 Rating of Plant

The rating of the engine shall take cognisance of the site conditions, site altitude and include all auxiliary equipment such as radiator and fan, oil pump, water pump, air filter, governor, battery charger (generator) etc. The output stated shall only be the nett available, after the above have been allowed for.

The engine output must be de-rated in accordance with BS 5514 for the site conditions stated in the particular specification.

27.7 Overload Facility

The engine shall be capable of delivering 10% overload for one (1) hour in any 12-hour period of continuous running.

27.8 Engine Appearance

The engine shall be of neat appearance and all water, lubricating and diesel oil lines, filters and stop cocks shall be of top quality and completely leak free.

27.9 Service Connections

All service connections to the engine shall be flexible to prevent vibration being transmitted between plant and building, and to prevent damage to these lines and connections.

27.10 Supporting Framework

The engine and pump shall be mounted on one common steel supporting frame manufactured of channel iron or other equivalent steel work to provide a rigid and solid foundation. The main frame shall be of the "skid" base type. If no "skid" base is provided, suitable for free standing, holding down bolts and vibration eliminators to the generator set manufacturer's specification must be provided. This subframe shall be supported from a main frame by anti-vibration mountings. Duplex anti-vibration mounts shall be used.

The inner frame and its supports shall be of sufficient height above floor level to permit installation of a drip tray and for draining of engine oil.

The drip tray must be sloped and made of mild steel. It must be fixed in the frame beneath the engine and alternator and a drain pipe fitted with a plug must be extended from the lowest point of the drip tray to beyond the frame in an easily accessible position.

27.11 Heat Protection

All engine piping, whether flexible or rigid, shall either be of the heat resistant type or adequately protected against damage by radiant heat. This also applies to any wiring attached to the engine.

27.12 Crankcase Vent Pipe

The crankcase vent pipe shall be taken to the drip tray to collect oil condensate.

27.13 Bearings

Engine bearings for the crankshaft and connecting rods, big and small ends shall be of the bush type, split sleeve type, or roller type. The bearing types and metals shall be suitable for operating in the worst site conditions.

27.14 Lubrication

The lubrication shall be by means of a force-fed pressure system supplying circulating oil to all bearings, gear trains and important moving parts. A gear driven oil pump shall be incorporated with an oil cooler if necessary. The oil cooler shall have a thermostatically controlled oil bypass valve to control the oil inlet temperature by proportionate bypassing. 250 hour running time, full flow oil filters with automatic bypass and replaceable elements shall be fitted.

An isolating valve shall be fitted in the oil line from the make up tank to the sump in order to facilitate sump draining without the loss of new oil from the make up tank.

27.15 Cooling

27.15.1 General

Cooling of engines may be either by air or by water.

27.15.2 Water Cooling

Where radiators are used, they shall be of the heavy-duty industrial air blast type, pressurised and sized for continuous full load operation.

The fan shall be designed and run in a direction such that cool air is drawn across the generator, engine and radiator in that order.

Removable ducting shall be provided between the radiator and the louvre in the wall opening.

Fans must be liberally sized to enable engines to operate well within their maximum temperature limits (but without running too cool) at the ambient site conditions stated in the particular specification or at a plant room temperature of 40 deg C whichever is the higher.

In water cooled engines water circulation shall be pump driven by means of an integral engine mounted centrifugal pump.

If under exceptional circumstances cooling towers are required these will be specified separately in the particular specification. It will be required that they be of stainless steel or fibre glass and that particular attention be paid to plant room ventilation under these circumstances.

27.15.3 Air Cooling

In air cooled engines air ducts shall be provided to positively exhaust hot air and to prevent re-circulation. Integral engine mounted fans are required to ensure air flow across the various components in the order listed above.

Discharge ducting must be taken straight up through the roof of the plant room and must be made with strategically placed flanged joints, etc to enable it to be easily removed for servicing and maintenance purposes (if required), and/or to permit removal of the set without having to remove the ducting. Quick action type lock nuts or screws to enable quick and easy dismantling of ductwork are required. Self tapping screws are unacceptable.

The ducting must be fixed to the roof structure, must be flashed to render the exit point waterproof and must be fitted with an expanded metal bird screen at the discharge end(s).

The ducting must be made in such a way that expansion and contraction of the ducting will be taken up by sliding joints or similar.

The discharge end of the ducting must be fitted with a cover to prevent the ingress of rain water at times when the set is not running. Over and above, a drain point for accumulated moisture must be provided at the lowest point of the ducting. This drain must be piped to just outside the plant room door. Drainage of moisture from the ducting must be such as to prevent the diesel engine from getting wet.

Ducting must be made of 16-gauge galvanised iron suitably cross braced to prevent drumming.

27.16 Speed Control

The engine shall be provided with a suitable governor to control the engine speed to within 10% of its rated speed under any condition of load up to the full load rating. The governor shall be field adjustable.

27.17 Air System

The air system shall consist of two items, viz. the incoming combustion air and the exhaust gas.

27.17.1 Combustion Air

Combustion air filtration shall be by means of dry type, cartridge, high efficiency air filters fitted and sized for 500-hour operation and supplied complete with a service indicator. Oil bath air filters may be fitted and used in existing plant only. Air filters must be of Donaldson manufacture or similar, equal and approved.

27.17.2 Exhaust Gas

Exhaust gas shall be piped, the piping being fitted with expansion joints, silencer and discharged to atmosphere.

The expansion joints shall be of the stainless steel, concertina type, flexible, flanged and bolted to the exhaust manifold or turbo-charger outlet as applicable. Stainless steel bolts and nuts of the appropriate size must be used. Care must be exercised that exhaust pipe and silencer supports at the expansion joints are so positioned that no strain is placed on the manifold joint, turbo-charger, piping or silencer.

The silencer shall be of stainless steel, of the baffle or absorption type of a size and construction such that a sound level of 75 dB absolute is not exceeded within two meters of the exhaust. The exhaust pipe shall be of stainless steel, insulated and of sufficient size to ensure that the back pressure is acceptable within the limits of the engine manufacturer. The exhaust system shall be offset from the centre line of the plant to allow for hoists or cranes to remove the engine.

The piping shall have bends with a minimum radius of 2,5 times the pipe diameter, insulated with 25 mm thick insulating rope and cloth or similar suitable approved insulating material, and be wrapped and sealed in bright polished class 430 stainless steel sheeting.

Stainless steel nuts and bolts must be used in assembling the exhaust system. Flanged joints are required to aid dismantling.

Exhaust piping over 100mm diameter must have a minimum thickness of 1,6mm.

Once the exhaust is external to the building, no insulation is necessary. The entire system shall be supported with flexible hangers, brackets, clamps, etc.

27.18 Engine Fuelling

Engine fuelling shall be by means of an engine mounted pump with the governor-controlled fuel injection pump(s) and injectors all arranged for easy access and maintenance.

A fuel filter with replaceable elements shall be fitted between the lift pump and the injection pump, suitable for the full flow of fuel at full load. The filter must take out particles down to 5 microns in size, or less, and be of Donaldson or similar, equal and approved manufacture.

A primary, heavy-duty filter/water separator shall be fitted before the lift pump in the fuel line from the tank. This water separator shall be of Donaldson or similar, equal and approved manufacture, shall be suitable for 250-hour operation and be easily maintained.

Copper tubing shall be used from the sludge filter to the engine components, but steel tubing may be used on the overflow from the injectors to the fuel tank. Note that galvanised piping is not acceptable. All piping shall be neatly run and securely fixed with saddles and clamps taking cognisance of flexibility to prevent vibration damage as stated in Clause 27.9 .

27.19 Starter Motor

Starting of the plant shall be by means of an engine mounted, electric starter motor on sets up to 500 KVA. Above this size two motors will be required. The starter motor(s) shall be suitably sized to easily spin the plant under "cold start" Winter / Summer conditions without the use of special starting equipment.

Two interlocks shall be incorporated, one electrical and one mechanical, preventing the starter motor engaging unless the engine is at rest.

The starter motor(s) shall be 12- or 24-volts D.C. fitted with an approved device for positive engagement. The starter motor shall be controlled from the plant panel.

27.20 Jacket Water Heaters

Water cooled engines shall be fitted with immersion heaters of a minimum of 1,5 kW up to 5 kW capacity in order to ensure that the jacket water temperature is warm enough for the engine to start easily from cold and under severe cold conditions. Heaters must be so situated as to promote thermo-syphoning of the water with the piping connections installed in such a manner that the cooling system thermostat does not impede the free flow of this thermosyphoning water. The temperature shall be thermostatically controlled via a relay and the elements fed at 220 volts with M.C.B. protection at the panel.

27.21 Battery

The battery shall consist of a number of cells to form a 12- or 24-volt D.C. supply suitably sized to start the engine. These cells shall be of the lead acid type with flat terminals, rated at 1,5 volts/cell and mounted on a suitable frame with a timber base. The battery shall be as close as is practical to the starter motor, but separate from any vibrating parts of the set.

The battery discharge capacity with full cranking current for 60 seconds at a temperature of 5 deg C shall not fall below a cell voltage of 1,5 volts. This voltage is considered the minimum to

satisfactorily operate the 12 or 24 V. D.C. control equipment on the control panel (i.e., after three starting attempts, each of 10 seconds, the panel control voltage shall not be below 20 volts D.C.)

The battery under normal conditions shall be continually trickle charged from the Control Panel charger (reference must be made to clause 28.9).

Under running conditions, the battery shall be charged from an engine driven brushless Alternator/Rectifier complete with auto rate control.

The battery cables must be run clear of all exhaust piping and other hot surfaces and must be fixed in position so as to ensure correct reconnection of the cables in the event of the battery being changed or removed. The cables must be liberally sized in order to minimize the voltage drop to the starter motor.

27.22 Protection Equipment on Engine

The protection of the set is covered under paragraph 28.0 but the following monitoring equipment is required as listed hereunder:

27.22.1 Alarm signal system in wall mounted or floor standing control board for indicating "shut down" of the following items:

a) Fail to start / starter circuit lockout

b) High water temperature (sensed on engine side of the thermostat) or high head temperature in the case of air-cooled engines

c) Low oil pressure

d) High oil temperature (if required)

e) Low fuel pressure (if required)

f) Engine over/under speed

27.22.2 Gauges in the wall mounted or floor standing control panel showing:

a) Fuel oil pressure (if required)

b) Lubricating oil pressure

c) Lubricating oil temperature (if required)

d) Jacket water temperature

27.22.3 All necessary sensors for alarm circuits.

27.22.4 All necessary fuel cut off solenoids

27.22.5 A manual shut off valve before the lift pump in the fuel line at the day tank.

27.23 Coupling

The engine/pump coupling shall be by means of a flange adaptor ring or bell housing incorporating a shock absorbing coupling. The flexible coupling shall be direct coupled to the engine and alternator with no gears so that the engine and alternator run at 1500 rpm or the regular engine speed compatible with 50Hz power generation.

27.24 Fuel Tanks and Pumps

27.24.1 Day Tank

A combined fuel storage and day service tank shall be supplied with each set. The tank shall be mounted on a self-supporting floor standing steel frame at a minimum height of 400 mm above floor level (to provide a gravity feed to the engine) or integral with the engine/pump support base. This service tank shall be mounted close to the plant, within the plant room, hold a minimum of 150 litres and a maximum of 200 litres. A full height transparent gauge tube shall be fitted to the service tank. The gauge tubing must be similar or equal to that supplied by Lister diesel engines. (Plastic tubing will not be permitted). If called for in the particular specification a dip stick may be supplied and fitted in lieu of the gauge glass.

The service tank shall be so designed and mounted such that water and sludge can collect at the lowest point and be easily drained off by means of a stop cock. The lower gauge tube connection must be fitted with a shut-off valve.

A manual ball type shut off valve between the service tank and the lift pump shall be incorporated in the steel or copper fuel feed pipeline.

27.24.2 Fuel Piping

In principle the fuel lines shall all be medium class steel to SABS 62 or BS 1387 (but not galvanised) with appropriate bends to provide an expansion facility. Copper shall only be used from the primary filter to the engine pumps.

A fusible link mounted directly above the set and connected to a dead weight operated fuel shut-off valve will be required in instances where the day tank is situated in a separate room to the generating set.

27.24.3 Fuel Pumps

One diesel fuel pump suitably sized, shall be fitted adjacent to the service tank.

It shall be a centrifugal pump complete with electric motor, starter, isolator and float switches. Level control and float switches for control of the pump(s) shall be mounted within the service tank.

Float switches shall be "REMEX" level controllers (or similar and equal and approved). Three float switches will be required, one to operate the pump (on/off), one for a low-level alarm and the other for an extra low level engine cut-out. A facility for running the pump manually is required.

It must be possible to mute all alarms but the indicator light(s) must remain on until the tank has been refilled at which time they should cancel automatically.

The float switches shall be of such a type that they can be tested manually without opening the tank. They must further be installed in such a manner that they do not foul each other.

28 CONTROL PANEL

28.1 General

The control system may consist of plug in, low voltage relays of the octal base type or solid-state PC control . The panel shall provide full protection for the diesel pump set.

28.2 Sheet Metal Work

The control panel and components shall be of approved design, manufacture and construction and shall be complete in all respects with all necessary equipment, bars, connections, wiring and accessories. The panel shall be robustly constructed, shall be in accordance with standard accepted practice, comply to the relevant S.A.B.S. Code of Practice and/or BSS 162/1961, and shall have an attractive appearance.

The panel shall be totally enclosed, dust and moisture proof as well as rodent and insect proof with full gland plates fitted at appropriate heights. The panel shall be floor standing and have a steel

plinth. Doors shall be of folded and welded construction, with suitable bracing to eliminate buckling, and all doors and cover plates shall have rubber seals and grommets.

A construction of angle iron and loose sheets will not be acceptable, neither will pop-rivets or self tapping screws.

All steel work shall be thoroughly de-rusted. Millscale shall be removed by shot blast or other approved means and the steel work then degreased, followed by bonderising or similar phosphoric inhibitive treatment. A zinc chromate primer shall be applied, followed by two coats of best quality white enamel inside and three coats of enamel (Electric Orange) on the outside, sprayed and baked on. Bolt heads or thumb screws securing the panels shall be chromium plated. The latches securing the doors shall have positive locking devices and no spring-loaded ball latches or similar will be accepted.

28.3 Approvals

Before commencement of manufacture of the panel, full working drawings must be submitted for approval by the Engineer. When the panel is under construction, and again upon completion but prior to delivery to site, the manufacturer must notify the Engineer so that the panel can be inspected and approved.

28.4 Components

All components where possible shall bear the SABS mark or if not available the equivalent B.S. or DIN mark.

All components shall be entirely suitable for their application and the switchgear shall be suitable for the site and location. Space shall be provided for the incoming and outgoing cable circuits.

All cut edges and drilled holes of Bakelite or similar insulation board must be treated with electrical varnish. All equipment, levers, handles, keys, etc. required for operation of the panel must be included together with suitable clips or trays to store these when not in use.

28.5 Guarantee

The whole of the panel and components shall be guaranteed for a period of 12 months from the date of hand-over to the Owner

28.6 Equipment

The following equipment shall be included on the panel:

(a) 1 meter (220 V AC) to indicate the total running hours the plant has been in operation.

(b) 1 voltmeter (as per BS 89), approximately 125 mm scale to read 0 to 415 volts.

(c) Control relays, start relays, three crank start relays, start failure relay, fuel supply relay (solenoid), continually rated alarm relay, oil pressure relay, oil temperature relay, overspeed relay, water overheat relay, jacket water heater relay, alarm relay, low fuel relay.

(d) Illuminated resettable fault indicators, coupled to a common continuously rated hooter or low current electronic type yodel alarm for: low oil pressure, high oil temperature, high water temperature, engine overspeed, failure to start, pump overload, low fuel level, extra low fuel level engine trip

(e) Auto/Test/Manual/ off selector key switch

(f) Battery charger

(g) MCB's for:- Battery Charger, Jacket water heater, fuel pump

(h) Lamp and alarm test facility.

28.7 Sequence of Operation

The control panel shall be so designed to provide the following:

28.7.1 A water pressure sensing relay which in the event of a fall in pressure the timing sequence shall be :

28.7.1.1 An immediate command to the engine to start.

28.7.1.2 Once the command to start has been given, three start attempts shall be allowed each of 10 seconds with a 10 second delay between each attempt. In the event of failure to start within these 3 initial attempts, the starting system shall switch off and a L.V. alarm shall be initiated. Any further start attempts may only be carried out when the plant is in the "manual" position.

28.7.1.3 Fault reset after identification and rectification of same shall be by switching the selector to the "off" position and then back to the desired mode.

28.8 Protection of Plant

The panel shall automatically provide the following protection with the alarm circuiting and tripping devices operating off the 12- or 24-volt D.C. Battery as applicable.

	Hooter or Siren	Visual Light Indicator	Lock out	Fuel Solenoid off
Overspeed	X	X	X	X
Under speed or overload	X	X	X	X
High Temperature	X	X	X	X
Low Oil Pressure	X	X	X	X
3 Starts Failure	X	X	X	X
Low Fuel Alarm	X	X		
Battery Charger Failure	X	X		
Extra Low Fuel Cut-out	X	X	X	

All the above shall have the necessary re-set buttons.

28.9 Battery Charger

28.9.1 The charger module shall be a mains (220 V) operated unit to continuously trickle charge the engine starter battery.

It must be of the modulating type similar or equal to those supplied by Messrs Vaal, Romberg, Semi-Conductor Services, or P & S Power Products or be as further specified here.

28.9.2 A "loss of charge" alarm relay shall be provided to indicate failure of the charger. This should be a current monitor.

28.9.3 The output voltage (27,6 volts D.C. or 13,8 volts if applicable) shall be via full wave rectification and be kept within 1% of the float charge voltage.

28.9.4 The 220-volt input voltage may vary between 200/240 volts and the equipment, (transformer etc) must be capable of handling this discrepancy.

28.9.5 During the "cranking/start" period and during running of the diesel engine the battery charger shall be disconnected via a relay. Charging of the battery shall then be by means of an engine mounted alternator.

28.9.6 The charger shall be equipped with:

(a) Overload protection on the 24 (12) volt side

(b) One 72 x 72 mm shielded type ammeter showing the charging rate

(c) One 72 x 72 mm shielded type voltmeter with a spring return, normally open, push-button switch for indicating battery voltage

(d) Relays for "failure alarms" and "running/start"

(e) Transformer and full wave solid state rectifier complete with capacitors where applicable.

(f) HRC fuses or fast acting MCB's on the secondary side

28.9.7 The battery charger shall be fully incorporated into the main control panel and be built to the same general specification (see paragraph 28.1) Relays shall preferably be of the "Octal" base type or equal and approved.

28.9.8 Ventilation.

The position of the battery charger shall allow for good ventilation and not be below any of the other switch gear or relays.

28.10 Log Book

A plastic covered log book shall be supplied for each plant room.

28.11 Emergency Lighting

A 24 (12) Volt emergency light must be incorporated into the top section of the control panel in order to provide sufficient illumination for the safe operation and checking of the control panel. This light must switch on automatically in the event of a mains failure.

29.0 COMMISSIONING OF PLANT & EQUIPMENT

29.1 All instruments used shall be provided by the Contractor and shall be accurately calibrated and maintained in good working order.

29.2 Testing and balancing shall not begin until the system has been completed and is in full working order.

29.3 Tests shall be conducted by the Contractor in the presence of a Representative of the Engineer.

29.4 Two copies of the complete test reports shall be submitted to the Engineer prior to the first delivery of the project. Reports shall cover test and balance analysis for all air distribution and hydraulic systems. Sound tests for room type air conditioning equipment and all diffusers in occupied areas shall be included in the report. Reports shall be neatly typed.

VOLUME 2.3 PART 3 FIRE PROTECTION TECHNICAL SPECIFICATION

1.0 Introduction and General

This detail specification complements and qualifies the foregoing standard specifications of material & workmanship. The standard specification should be regarded as a basis and guideline, with this detailed specification taking preference where any ambiguity is concerned.

In the event of any further technical ambiguity between sections of this enquiry, then the sections will be considered in the following order of priority (unless stated elsewhere in Conditions of Contract).

- Schedule of quantities
- Detailed specification
- Drawings
- Standard specification

2.0 Scope of Work

This subcontract calls for the supply, installation, testing and commissioning of the specified Fire Protection Installation for the Construction of New Integrated Traffic Control Centre at Middelburg.

2.1 The following sections of work are included:

a. Supply and Installation of complete:
- Fire protection installation, complete with all pipework, holderbats, isolating valves, hose reels and the connection of the reticulation to the underground civil fire mains connection, either within a valve box or a saddle.
- Handheld fire extinguishers.
- Signage.
- All installed by SAQCC approved installer.

b. Testing and certification:
- Performing and submission of test records (as per SANS requirement) and certificates.
- Issuing of SAQCC Fire Certificate of Compliance
- Supply of Operators and Maintenance Manuals
- Basic maintenance training for building maintenance staff
- Provision of a twelve-month guarantee for the installation including a full service prior to expiry.
- All other materials and labour necessary to complete the Works in full accordance with the specification and design contained or referred to in this document.

2.2 The following sections of work are excluded:

- Builder's work e.g., cut-outs in walls to Tenderer's specifications, including chasing and making good of walls.

3.0 Site Conditions

3.1 General

The equipment specified herein shall be designed to operate at the environmental parameters particular to Middleburgh and surrounds.

4.0 Fire Mains Service Connection

4.1 Connect to existing Fire mains bulk supply line, via 25 mm saddle.

5.0 Pipe Locations, Materials and Specifications

For steel piping of 75 mm diameter and larger (i.e. flanged) the hot dip galvanising to SANS 763, 1977 (when required) shall be after fabrication.

6.0 Pipe Jointing and Fittings

Mild Steel Piping and/or Galvanised:

6.1 Mild steel piping shall be joined by means of screwed sockets, navy unions or flanges. Red lead jointing or other approved jointing compounds may be used sparingly and exposed threads shall be painted with zinc chromate primer or equivalent paint to prevent rusting.

6.2 Where it is required to remove sections of pipe or where pipe joints will need to be tightened after installation and testing, unions or flanges must be provided to facilitate the work,

6.3 Welding construction is only permitted for pipes of 50 mm diameter or larger and then only when prefabricated and welded in the workshop of the installing engineers whose welding procedures, pre-approved by the Insurance Council of South Africa.

NO WELDING OR HEAT CUTTING IS PERMITTED ON ANY SITE OF ERECTION

The edges of pipe to be welded shall be machine bevelled wherever possible. Gas cuts shall be true and free of all burned material. Before welding the surfaces shall be thoroughly cleaned and degreased. Piping shall be carefully aligned. No metal shall project within the pipe. Mitred joints will not be allowed.

Only welded fittings prefabricated by recognised manufacturers will be permitted. No other prefabricated welding fittings will be permitted without the express approval of the Engineer.

For branch piping sixty five millimetres (65 minimum) in size or larger, use welding tees, with flanged outlet. For piping 200 mm and larger use shaped spigots and welding neck flanges. Cracks, pinholes, excessive undercutting etc. shall be removed and the joints rewelded. Welders and welding processes shall meet the requirements of the SANS Code for welders.

6.4 Jointing of mild steel and galvanised piping using grooved pipe fittings and couplings may be used provided they have been approved by SANS. Proper gaskets, designed for the applications shall always be used. Approval by the consulting Engineers must in all cases be obtained prior to the utilisation of such fittings.

7.0 INSTALLATION OF PIPING

All piping shall be installed in an approved manner to meet structural and architectural requirements, to avoid interference with the work of other trades and be finished in a neat and workmanlike manner with true alignments and grades. Piping shall be run to ensure sufficient access for inspection, testing, servicing, etc.

7.1 Storage

Deliver and store to Suppliers recommendations with plugged ends. Clean pipes thoroughly. In addition it is required that pipes are stored off the ground and under cover.

Keep the ends closed during erection with temporary caps. Before any pipe is installed it shall be upended and pounded to remove any foreign matters present.

7.2 Installation

Slope of Pipes

In order to prevent air being lodged, the pipe lines shall have a proper inclination throughout the work.

Also the sloping shall be such that the system can be thoroughly drained.

7.3 Underground Piping

a) Unless otherwise specified, the Contractor shall not be responsible for the digging and backfilling of pipe trenches for underground piping in his contract. He is however to ensure that the excavations and laying of piping is in accordance with SANS 1 200 06, LD and LD, and that this specification is adhered to so that his installation can be correctly installed.

b) The trenches shall be of such depth that when properly laid at least 750 mm of soil shall cover the top of the pipe.

c) The pipes shall be laid on a clean, soft soil bed not less than 750 mm deep. When backfilling the trench, it shall firstly be filled to approximately 1 50 mm above the pipe again with clean soft soil and then compacted after which the final filling is to be made and again compacted (care shall be taken to ensure that no large stones or debris occur in the filling material).

d) In the case of cement and uPVC piping the Contractor must ensure that the trenches are recessed where couplings or fittings are positioned such that the pipe lies flat on the bed. This is to prevent the fittings supporting the length of pipe. The Contractor is also to allow for any pipe movements, such as thrust at bends etc. Concrete blocks in accordance with manufacturer's specifications shall be provided at these points. Where asbestos cement piping cross roads etc., the pipe shall be protected by casting into concrete not less than 100 mm over the top of the pipe.

e) Where steel or uPVC pipes are to cross roadways, under connecting corridors, etc., the Contractor shall provide PVC sleeves through which the pipes will pass. It shall be at a depth of not less than 750 mm below the surface and shall be encased in concrete not less than 150 mm all round. These sleeves are to be two pipe sizes above the size of the water pipe to permit the removal and the replacement of the pipe should the need arise.

7.4 Internal Pipe Runs

All piping shall be installed parallel to, or at right angles with building walls and partitions.

In general, all pipes shall be supported from the building structure in a neat and workmanlike manner, and whenever possible, parallel runs of piping shall be grouped together.

a) Where pipes pass through walls, floors, ceilings, etc., they shall be sleeved. The sleeves shall be of PVC material and allow for pipe thermal reactions.

c) Where pipe sizes are reduced, proper reducing fittings shall be used. On no account will bushes be accepted.

d) Horizontal take-offs from vertical pipes shall be long enough before the next fixing to take up any movements or shall have an expansion loop to provide this facility.

e) Every tube section shall be installed to have the possibility of expansion and contraction without restriction. It shall be anticipated that no deflection acts on very short tube section. Expansion loops or expansion joints and anchors shall be fitted in order to reduce the displacement of individual line elements and to deflect them to the points where they can act without damage.

7.5 Concealment of Pipework

Pipework must not be embedded in the concrete floors of a building, nor should it be concealed in any other situation where difficulty or undue expense would be involved in making alterations or additions which may subsequently be necessary. Concealment of pipework is particularly to be deprecated in the case of buildings in multiple tenure where erection of partitions to suit tenants may impair the effective distribution of water from the sprinklers and necessitate alterations in the positioning of sprinklers.

7.6 Pipe Hangers and Supports

a) All pipes shall be supported from the building structure in a neat and workmanlike manner and, wherever possible, parallel runs of horizontal piping shall be grouped together on trapeze hangars.

b) Vertical risers shall be supported at each floor line with pipe clamps. The use of wire, perforated metal straps, nails and so forth, to support pipes will not be permitted. Hanging of pipes from other pipes will also not be permitted.

c) Vertical runs shall be secured by means of rustless holderbats or other clamps. Duckfoot supports shall be provided at the bottom of a vertical section of large piping (100 mm and above) to support the weight of the pipe and the water.

Under no circumstances shall a vertical pipe be supported from its highest point. Should any fittings be installed in the vertical sections, care shall be taken to ensure that these fittings are not in a state of tension through the combined weight of the pipe and the water.

d) Horizontal pipes shall be supported by means of galvanised hangers at close enough centres to prevent sagging. The minimum recommended spacings for supports and hanger rod size shall be set out below:

e) The hangers shall be protected against rust and adjustable in height. They shall be manufactured from rods of the diameter as specified above, one end threaded and bolted to an angle iron cleat or Unistrut section suitably secured to the structure. The other end shall be formed into an eye and bolted to the pipe clamp.

7.7 Changes in Material

Where piping material changes occur (i.e. copper to steel etc.) dielectric unions must be furnished and installed.

7.8 Threaded Pipe

The pipe connection shall be cut square and full threaded with clean cut tapering threads and shall be reamed after threading. All threaded connections shall be made with approved thread compound applied to male threads only, and shall be so made up that not more than two (2) threads ill be exposed.

7.9 Testing of Water Piping

All piping installed on the project shall be hydraulically tested as specified herein. The Contractor shall provide all equipment required to make these tests.

Piping may be tested a section at a time in order to facilitate the construction programme.

The Contractor shall fill the section of the pipe to be tested with water and bring the section up to test pressure with a positive displacement type test pump. The tests shall be conducted by the Contractor in the presence of the Engineer or his representative. Gauges used in the tests shall have been recently calibrated with a dead weight tester.

All tests shall have full test pressure applied to the piping for a minimum of twenty-four (24) hours

The test pressure at any section of the system shall not be less than one and a half times the system working pressure or 1 500 kPa (Maximum) unless otherwise stated under Part Four of the specification. When the test pressure has fallen over 6 percent (%) during the twenty-four (24) hour test period, the point of leakage shall be found, repaired and the test repeated. This procedure shall be followed until the piping system has been proven absolutely tight.

The use of chemicals or so-called “stop-leak” compounds will not be permitted at any time.

When instruments or gauges are installed in the piping system, they shall be removed during the tests if subject to damage from shock or excessive pressure. This does not apply to control valves.

Leaks shall not be repaired by mastic or other temporary means. All leaks shall be repaired by removal of the section that is leaking and reinstalling new material with joints as specified herein before.

7.10 Flushing of System Pipework

There must be a 50 mm diam. flushing connection fitted on the incoming main below each installation control valve. These flushing points must be plugged to prevent misuse.

7.11 Terminal Drain Valve

25 mm drain valves must be fitted at the extremity of the distribution pipe at each level of protection. This is to indicate that there is water at this point and that no blank flanges are left in the installation. The valve should be positioned at hand level and must be normally strapped closed.

8.0 **Fittings**

8.1 All fittings, including safety devices are to be placed and sized.

9.0 **Safety Devices**

9.1 Where applicable.

10.0 **Handling And Storage Of Materials, Fittings And Components**

10.1 Pipes, fittings and components shall be handled carefully to obviate damage

10.2 Manufactures’ advice shall be followed as to how their products should be loaded, transported, unloaded and sorted

11.0 **Identification**

11.1 Colour Coding

11.1.1 General

All equipment shall be colour-coded in accordance with standards recognised, and where possible to comply with relevant SANS colour codes unless specified otherwise.

11.1.2 Colour Coding of Pipes

Identification of the contents of pipes shall either be by painting a 100 mm wide primary colour band or by using self-adhesive PVC coloured tape. The colour of the paint or tape shall comply with SANS 0140 Identification Colour Marking, Fart III, Contents of Pipelines, as detailed below.

The colour names referred to in the table s are specified in SANS 1091.

TABLE OF COLOUR CODING FOR PIPELINES AS PER SANS 0140 PART III - 1978

CONTENTS OF PIPE PRIMARY COLOUR BANDS

FIRE FIGHTING

- All Pipes Signal Red

12.0 **Sterilization**

12.1 N/A

13.0 **Builders Work**

13.1 The Engineer will prepare details showing where all sleeves are to be positioned before any structural concrete is cast.

13.2 The Engineer's approval, in writing, must be obtained before any holes or chases are cut in any structural component i.e. brickwork, concrete, steel or timber.

13.3 The Contractor shall be responsible for cutting chases and holes in walls and slabs to accommodate his services which must be coordinated in liaison with the Main Contractor who will be responsible for making good.

14.0 **Excavation**

14.1 General:

Tenderers are to note that excavation shall be carried out by the main contractor.

15.0 **Operating And Maintenance Details**

15.1 Two complete sets of operating manuals complete with spares schedules, as-fitted layout drawings, schematic diagrams and operating and general maintenance information, bound in hardcover ring binders shall be prepared by the Contractor and delivered to the Engineer 14 days prior to practical completion for approval, at or before final handover.

15.2 A full “RECORD” set of drawings shall also be submitted to the engineer for record purposes.

16.0 **Schedules Of Information**

16.1 The schedules of information contained in this document consists of 2 sections :

a. Information supplied by the Engineer (schedules of drawings, sleeves etc. as applicable.)
b. Information to be supplied by the Contractor at tender stage

(tender form, information on the makes, types and ratings of equipment and materials offered, schedules of prices and rates for variations, schedules of quantities, etc. as applicable.)

16.2 Tenderers are required to enter, at the time of tendering, in the “Schedule of Equipment and Material Offered”, sufficient details to enable the equipment concerned to be identified without ambiguity.

16.3 It is not sufficient for a tender to state “as specified” in the schedules.

16.4 Failure to complete these schedules (if applicable) may render a tender invalid.

17.0 **Samples And Alternatives**

17.1 Tenderers may be required to submit for approval, comment or records samples of materials, apparatus or components, and also drawings, schematic diagrams or technical details, including calculations, upon which their design and/or offer is based before any contract is awarded. Such details may also be called for during the course of the Contract prior to installation. Any approvals given or comments made shall be on the generality of the scheme and shall not relieve the Contractor of his responsibility to ensure the full compliance with all performance and regulatory criteria.

NOTE : A request for submission of samples or drawings does not imply that the Tenderer's quotation will necessarily be accepted.

17.2 Any particular make or model of equipment referred to in the Documentation is for guidance purposes only in setting standards / types / performances required; equipment that is equal or superior in all respects, and to the approval of the Engineer, may be offered by Tenderers. No reference to any particular make of any equipment shall be construed as that equipment having been selected by the Engineer or Client and the Contractor shall be fully responsible for the guarantee and performance of such equipment.

18.0 **Certification On Completion Of Guarantee And Maintenance Period**

19.1 In the month prior to the expiry of the guarantee and first twelve months maintenance period the Engineer shall inspect and, if necessary, retest the installation so as to be able to provide the Tenant with a certificate, within fourteen days of the guarantee expiry date, to confirm that the guarantee has been honoured and that the installation has been properly serviced at required regular intervals by the sub-contractor.

18.2 The cylinders shall be guaranteed from date of take over for a period of three years on the tank, insulation and outer casing and for one year on the electrical components

19.0 **Supervision Of Workmanship And Details**

19.1 The work shall at all times, for the entire duration of the contract, be executed under the supervision of a skilled and competent representative of the subcontractor, who must be able and authorized to receive and execute instructions on behalf of the Mechanical Subcontractor.

19.2 In the event that inferior materials or bad workmanship, on the part of the subcontractor, leads to remedial work requiring redesign by the Engineer, the cost of this work, including related professional fees, shall be borne by the Subcontractor.

19.3 Similarly, should delays in the contract be caused by poor performance on the part of the Contractor causing the Engineer to spend extraordinary time on the project, the extra costs incurred shall be borne by the Contractor.

These costs will be based on the SAACE hourly rates and will be deducted from claims due or claims which will become due to the Contractor.

20.0 **Making Good**

20.1 The subcontractor will carry out in all instances any work to be made good such as damage to, or disturbances of the building installations caused by himself or his employees during the execution of the contract, at his own cost.

21.0 **Test And Inspections - Pressure Testing And Quality Control**

21.1 The Contractor shall, at no extra cost to the contract, provide all the necessary equipment and facilities to conduct all tests as directed by the Engineer and or Supply Authorities.

22.0 **Commissioning And Testing**

22.1 Commissioning:

A documented method shall be followed whereby the mechanical subcontractor shall ensure that his installation is correctly constructed in accordance with the manufacturers' specifications, consultant's specification, consultant's design and all codes of practice and international design codes.

The commissioning procedure must allow for signing off of the major items of equipment by a qualified person in terms of the codes. These signed off documents will form part of the record drawings.

22.2 Performance Tests:

The mechanical subcontractor shall be responsible for the physical testing, in the manufacturing works, or on site, of the items of plant or systems as required by the Engineer. These tests shall be performed by the mechanical subcontractor or supplier of the equipment, and where called for, the Engineer shall witness such tests. The Engineer may also only witness a representative sample of the equipment tests. In any event, the mechanical subcontractor will supply documentary proof of full performance tests of all relevant equipment.

22.3 Acceptance Tests:

All brass fittings and valves shall be certified by the manufacturers to be free
From de-zincification and will be subjected to check tests as set out in the Detailed Specification

Acceptance tests will be performed on site of the working system or sub system, to show that the works, as installed, is functioning according to the specifications and design. The onus for the correct functioning of the systems is still on the mechanical subcontractor irrespective of whether the Engineer has witnessed the acceptance tests or not. Prior to the system being connected, a test certificate must be issued by / given to the local electricity supply authorities.

23.0 Compliance With Regulations, Standards And Codes

23.1 The subcontractor will arrange for all inspections and testing of the installation after completion, including the issuing of the Certificate of Compliance. All notices, fees, including inspection and re-inspection are the responsibility of the subcontractor and all the relevant costs shall be borne by him.

23.2 The workmanship throughout the Works will be to the satisfaction of the Employer. Any materials or workmanship considered as faulty or incorrectly or inadequately erected or repaired, will be substituted, altered or rectified to the satisfaction of the Employer, without additional cost to the Employer.

23.3 The Works will be executed in strict accordance with the following:-

a. All relevant by-laws and regulations of local authorities.
b. All relevant SANS, BS and other international standards of the latest revision, where applicable.
c. The Occupational Health and Safety Act of 1993 as amended.

24.0 Monthly Certificates

24.1 Pro forma claim forms are available from the Engineer. These are available in a blank copied format or as a computer file in Excel. This is the preferred method of submitting payment claims. Should the subcontractor have developed his own method of claiming, this may be submitted to the Engineer for consideration.

25.0 Programme

25.1 The subcontractor must conform to the programme as submitted by the principal Contractor. The estimated period for completion, as tendered, is as per the builders programme. The cost of overtime, additional labour and plant for the completion of the works, in accordance with the programme, must be included in the Tenderer's price for the project. The cost of any work outside the requirements of the programme or necessary under exceptional circumstances will be for the Employers' account only if covered under a variation order.

25.0 Drawings

25.1 Tender Drawings

All drawings, those supplied loose, as well as those bound in, form part of this enquiry and are listed below:

- EE015.21.001/FP1 Building 1 Fire Protection Equipment Layout
- EE015.21.001/FP2 Building 2 Fire Protection Equipment Layout
- EE015.21.001/FP3 Building 3 Fire Protection Equipment Layout
- EE015.21.001/FP4 Building 4 Fire Protection Equipment Layout
- EE015.21.001/FP5 Building 5 Fire Protection Equipment Layout
- EE015.21.001/FP6 Building 6 Fire Protection Equipment Layout

- EE015.21.001/FP7 Building 7 Fire Protection Equipment Layout
- EE015.21.001/FP8 Building 8 Fire Protection Equipment Layout
- EE015.21.001/FP9 Building 9 Fire Protection Equipment Layout
- EE015.21.001/FP10 Building 10 Fire Protection Equipment Layout
- EE015.21.001/WS1 External Civil and Internal Mechanical Water Layouts

It is the Tenderer's responsibility to inform the Engineer as to the absence of any of these drawings.

26.0 **Sufficiency Of Tender**

26.1 The Tenderer's offer shall be for the supply, delivery, installation and commissioning of the complete installation as detailed, described or implied in this document and on the accompanying drawings.

26.2 The Tenderer's offer shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the Works and that the rates and prices he has entered in the schedules shall cover all his obligations under the contract for the proper completion of the Works.

27.0 **Measurement**

27.1 The Tenderer shall not make any assumption regarding the installation. If there is any doubt or ambiguity, the Engineer must be consulted. The Tenderer shall take cognisance of the fact that the schedule of quantities is re-measurable and the quantities may be adjusted at the end of the contract.

27.2 All measurements are nett, unless otherwise stated, and Tenderers must allow in the rate for wastage.

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING
FIRE PROTECTION INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	AMOUNT
	BILL NO. 1 : PRELIMINARY AND GENERAL					
1.1	Compliance with General Conditions of Contract : Insurances, Sureties, etc as outlined in the Principal Contractor's Preliminaries.					
	Fixed	No.	1			
	Value Related	No.	1			
	Time Related	No.	1			
1,2	Establish on Site and provision of buildings and storage facilities including de-establishment of site, cleaning and tidying up after completion of contract					
	Fixed	No.	1			
	Value Related	No.	1			
	Time Related	No.	1			
1,3	Tools and equipment, Communication, transport.					
	Fixed	No.	1			
	Value Related	No.	1			
	Time Related	No.	1			
1.4	Contract Management, Company overheads and supervision of the Works including attendance of site meetings (2 per month)					
	Fixed	No.	1			
	Value Related	No.	1			
	Time Related	No.	1			
1,5	Provision of all drawings and manuals as specified including As-Installed drawings	No.	1			
1,6	Liaison with Local Supply Authority, compliance with OSH Act, Local By-laws and any other statutory regulations	No.	1			
1,7	Any additional item not specifically mentioned or included in the Bills of Quantities which the Tenderer may wish to detail. (Specify)	No.	1			
1,8	Provision of Training of Client's representative (s) at "practical completion" and at "end of defects liability period".	Item	1			
1,9	Additional Items misc for engineer	No.	1			50 000,00
	Total Carried forward to Next Page					

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING
FIRE PROTECTION INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	AMOUNT
	Total Carried forward From Previous Page					
1,10	**GUARANTEE**					
	12 month guarantee of plant and equipment as specified	Sum	1			
	Allowance for servicing the plant during the guarantee period					
	Bi annual service calls to check plant operation, etc	No	1			
	Annual major service at the end of	No	1			
	Total Carried forward to Summary Page					

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING
FIRE PROTECTION INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2,0	**BILL NO. 2 : FIRE FIGHTING EQUIPMENT**				
	Fire Extinguishers Hand held fire extinguishers shall comply with the requirements contained in SANS 1910 or SANS 1151, and shall be installed, maintained and serviced in accordance with SANS 10105-1 and SANS 1475-1.				
	Supply, install, test and commission:				
2,1	4,5 kg DCP hand held fire extinguisher.	Item	8		
2,2	Plastic external housing for 4,5 kg DCP Extinguishers, with Breakglass key enclosure.	Item	2		
	Backing Boards				
2,3	Supply, install, test and commission backing board for portable fire extinguishers with mounted screws	Item	8		
	Fire Hose Reels				
	Fire hose reels to comply with requirements contained in SANS 543 and maintained in accordance with the requirements as given in SANS 1475-2.				
	Supply, install, test and commission:				
2,4	30m length of fibre braid reinforced neoprene hose of 20 mm internal diameter	Item	3		
	Tamper seals	no	3		
	Fire Hydrant Connections				
	Fire hydrant connections to comply with requirements contained in SANS 1128-2. Hydrant connections be provided with a length of fire hose 30 m in length together with couplings and a 16 mm internal diameter nozzle. C/w Pressure gauge, syphon and U-tube.				
2,5	80 x 65mm "Woodlands Type" or equally approved brass right-angle hydrant valve with cap and chain	Item	0		
	Total Carried forward to Next Page				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Total Carried forward From Previous Page				
2,7	Natural finish rubber line fire hose complete with light alloy or gun metal couplings, incl weather proof bow with break glass key.	Item	0		
	Galvanised piping				
	Galvanised piping above ground to SABS 763/1977 installed in accordance with the specification, drawings and manufacturer's recommendations.				
	Pipe diameters are nominal internal unless otherwise stated. Where fittings have reducing ends or branches they are described as "reducing". In the case of pipes with diameters not exceeding 60mm only the largest end or branch diameter is given. Should the contractor wish to use other fittings and bushes or reducers he may do so on the understanding that no claim in this regard will be entertained. In the case of pipes with diameters exceeding 60mm all diameters are given and no claim for extra bushes, reducers, etc will be entertained.				
	Unless otherwise stated, descriptions of pipes shall be deemed to include fixing to walls etc, casting in, building in or suspending not exceeding 1m below suspension level.				
	Descriptions of valves shall be deemed to include flanged or screwed connections to pipes, reducers, supports, etc.				
2,8	25 mm diam	m	53		
2,9	32 mm diam	m	0		
2,10	80 mm diam	m	0		
2,11	100 mm diam	m	0		
2,12	125 mm diam	m	0		
	Bends				
2,13	25 mm diam	No.	17		
2,14	32 mm diam	No.	0		
2,15	80 mm diam	No.	0		
2,16	100 mm diam	No.	2		
2,17	125 mm diam	No.	4		
	Total Carried forward to Next Page				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Total Carried forward From Previous Page				
	Tees				
2,18	25 mm diam	No.	0		
2,19	32 mm diam	No.	0		
2,20	80 mm diam	No.	0		
2,21	100 mm diam	No.	0		
	Reducers				
2,23	32 - 25 mm dia	No.	0		
2,24	100 - 25 mm diam	No.	3		
	Isolating valves				
2,25	25 mm diam	No.	3		
2,26	100 mm diam	No.	0		
2,27	125 mm diam	No.	0		
	Pressure Gauges				
2,39	Pressure gauge	No.	3		
	Pressure Test				
2,40	Pressure test piping.	No.	3		
	Valve Box				
2,41	Bulk Valve Chamber - Cover Dimension 400 x 324 mm; Frame Dimension 533 x 458 x 152 mm, clear opening 380 x 305 mm	No.	3		
	Connection				
	Connection of internal fire reticulation to to civil bulk fire main, saddle provided by others.				
2,42	25 mm diam	No.	3		
2,43	32 mm diam	No.	0		
2,44	100 mm diam	No.	2		
	Total Carried forward to Next Page				

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING
FIRE PROTECTION INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Total Carried forward From Previous Page				
	Fire Signage				
	Aluminium Framed Wall Mounted Frames with ABS PVC 150 mm signs				
2,45	2 Compartment	No	2		
2,46	3 Compartment	No	3		
2,47	4 Compartment	No	0		
	Aluminium Framed Cantilever "L" Bracket frames with ABS PVC 150 mm signs				
2,48	2 Compartment	No	2		
2,49	3 Compartment	No	3		
2,50	4 Compartment	No	0		
	Aluminium Framed Wall Mounted Frames with ABS PVC 190 mm signs				
2,51	2 Compartment	No	2		
2,52	3 Compartment	No	3		
2,53	4 Compartment	No	0		
	Aluminium Framed Cantilever "L" Bracket frames with ABS PVC 190 mm signs				
2,54	2 Compartment	No	2		
2,55	3 Compartment	No	3		
2,56	4 Compartment	No	0		
	Total Carried forward to Summary Page				

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING + NEW REHAB
FIRE PROTECTION INSTALLATION

BILL NO.	DESCRIPTION	AMOUNT
1	**BILL NO. 1 : PRELIMINARY AND GENERAL**	
2	**BILL NO. 2 : FIRE FIGHTING EQUIPMENT**	
	SUBTOTAL	
	CONTINGENCY 2,5%	
	SUBTOTAL	

REMINDER NOTE

The Total Price including Main Contractor's Mark-up which excludes VAT, must be carried over to the final summary in Volume 1 and all fixed amounts shown in the price schedule must be included therein. No adjustments will be made for any failure by Tenderers to include the fixed amounts in the Total Price for this particular installation.

SUB-CONTRACTOR'S NAME: …….

DATE: ……

SIGNATURE: ……

N.B. The above-named Sub-Contractor is to be employed on this contract. Substitute Sub-Contractors are not acceptable.

The price submitted include all Main Contractor's 'Profit and Mark up BUT Exclude the VAT when transferring price to Volume 1 of the Final Summary Total of the Main Contractor's Document

VOLUME 2.3 PART 5 SCHEDULE OF MATERIALS OFFERED

The Tenderer must complete the following schedules and submit them with the priced Bill of Quantities.

The schedules will be scrutinised by the Engineer and should any material offered not comply with the requirements contained in the specification, the Contractor will be required to supply material in accordance with the contract at no additional cost.

NB : Only one manufacturer's name to be inserted for each item.

Item	Material	Make or trade name	Country of Origin
1.	Gavanised steel pipe		
2.	Non-Return Valves		
3.	Isolating valves		
4.	Strainers		
5.	Angle valves		
6.	Manholes		
7.	30m Hose Reels		
8.	Hand Held Fire Extinguishers		
9.	Pressure Gauges		
10.	Hydrant Connections		

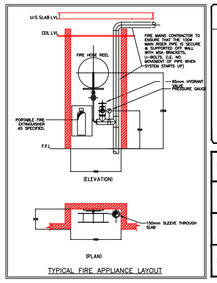
NOTE : Tenderers are to note that under no circumstances may materials be installed other than offered in the above materials schedule, which has been approved and accepted by the Contractor.

Should the successful tenderer wish to supply materials other than those originally offered, prior written approval must be obtained from the Contractor before any orders are placed.

FIRE ESCAPE SIGNAGE INSTALLATION NOTE:

FIRE EXTINGUISHER/HOSE REEL SIGNAGE TO BE PLACED AT FIRE EXTINGUISHER/HOSE REEL EQUIPMENT AS INDICATED ON THE DRAWING PLAN, BY THE SYMBOLS SHOWN BELOW:

(NOTE: SIGNAGE USED ABOVE FOR REFERENCE PURPOSES ONLY. SABS STANDARD SIGNAGE TO BE IMPLEMENTED IN THIS REGARD)

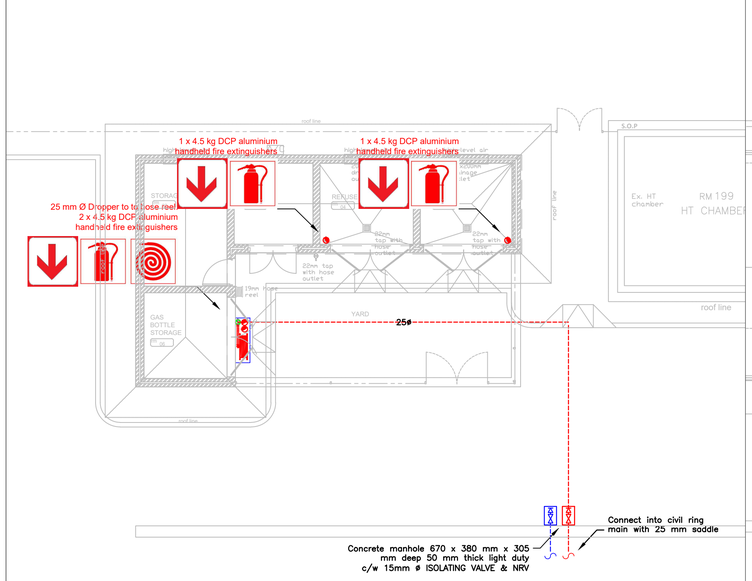


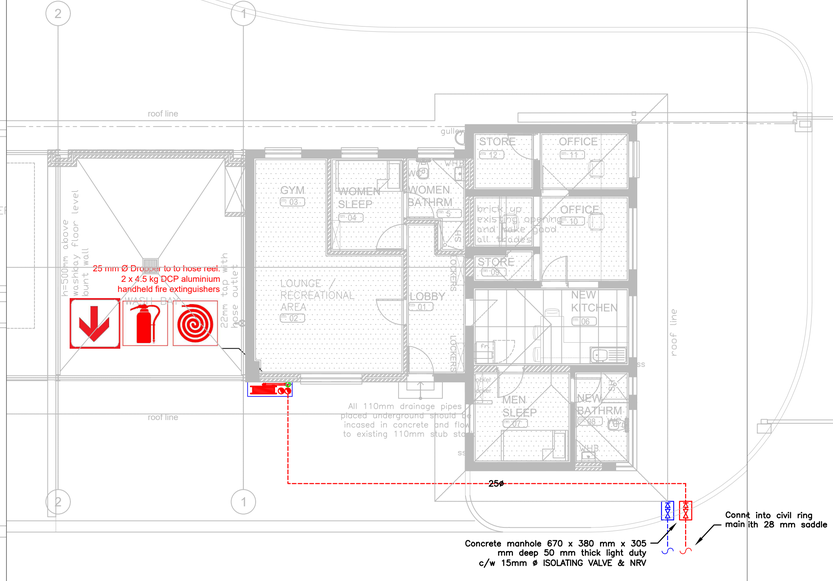
TYPICAL FIRE APPLIANCE LAYOUT

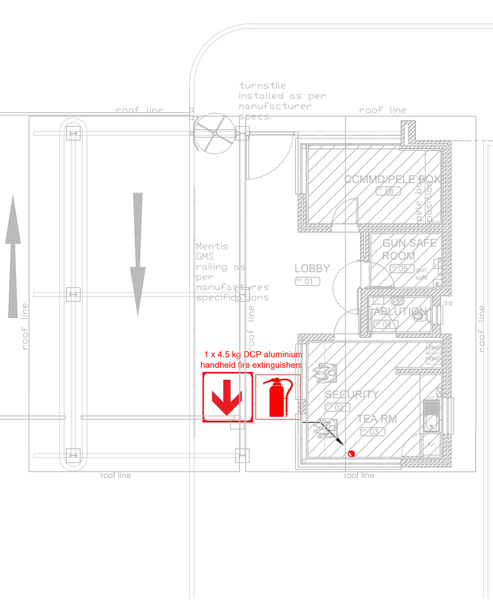
Installation Notes
1. ALL DIMENSIONS AND LEVELS TO BE CHECKED ON SITE PRIOR TO COMMENCENT ON SITE.
2. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL AND OTHER DRAWINGS.
3. ALL PIPEWORK TO BE MILDSTEEL GALVANISED.
4. REGULATION SIGNAGE WILL BE ACCOMPANIED WITH ALL FIRE EXTINGUISHERS & HOSE REELS.
5. ALL SERVICES TO HANG FROM TRUSSES AND PERLINS ONLY. NO

FIRE PROTECTION EQUIPMENT	Qty
65 mm Ø HYDRANT CONNECTION	0
30 m HOSE REEL	1
9 kg ALUMINUM HANDHELD EXTINGUISHER	3

Legend	
SYMBOL	DESCRIPTION
FE	9.0 kg DCP FIRE EXTINGUISHER
FM	FIRE MAINS PIPING
	NON RETURN VALVE
	ISOLATING VALVE
FHR	30m FIRE HOSE REEL (25ø CONN.)
FH	45m FIRE HYDRANT (100ø CONN.) COMPLETE WITH 45 m FIRE HOSE, COUPLINGS AND CUPBOARD
CP	FIRE PUMP CONTROL PANEL
PV	PRESSURE VESSEL
PS	PRESSURE SWITCH
P	PRESSURE GAUGE – 2500 KPA
PRV	PRESSURE REDUCING VALVE







GENERAL NOTES:

			REVISIONS
REV	DATE	INIT.	DESCRIPTION
00	04/03/23	TW.	Issued for information

CLIENT

TITLE

FIRE PROTECTION EQUIPMENT LAYOUT

EMS / GATEHOUSE / REFUSE & STORAGE PROPOSAL

CESA
Consulting Engineers South Africa

RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers

7 King Street,
Southernwood,
East London, 5201
E-Mail: office@rnaconsulteng.co.za

P.O. Box 12359
Amalinda, 5252
Tel: 043 742 0041
Fax: 043 742 3883

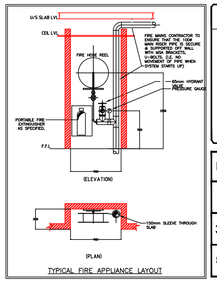
DESIGN	TENDER	CONSTRUCTION

DESIGNED BY: T.WARNE		SCALE 1 :100
DRAWN T.WARNE	DATE 03/11/2023	PRINT DATE 03/11/2023
CHECKED BY: Travis Warne		
REGISTRATION No. 201770017		
SIGNED.		
DRAWING NO. 2303-M-T-101 FP MW		REV No. B

FIRE ESCAPE SIGNAGE INSTALLATION NOTE:

FIRE EXTINGUISHER/HOSE REEL SIGNAGE TO BE PLACED AT FIRE EXTINGUISHER/HOSE REEL EQUIPMENT AS INDICATED ON THE DRAWING PLAN, BY THE SYMBOLS SHOWN BELOW:

(NOTE: SIGNAGE USED ABOVE FOR REFERENCE PURPOSES ONLY. SABS STANDARD SIGNAGE TO BE IMPLEMENTED IN THIS REGARD)



TYPICAL FIRE APPLIANCE LAYOUT

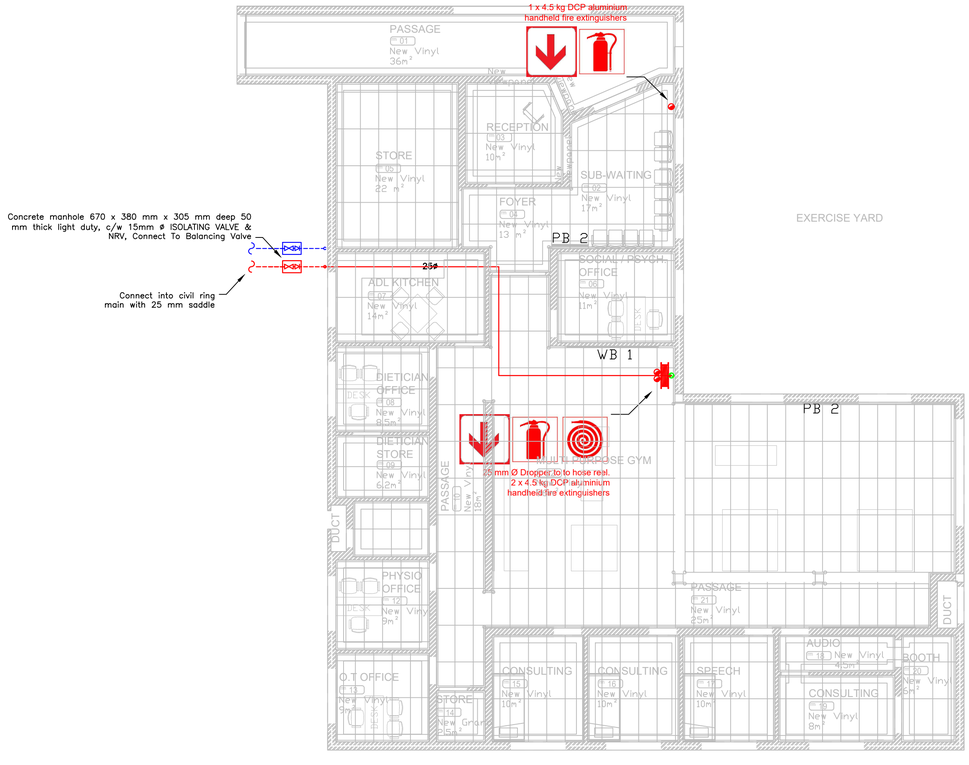
Installation Notes

1. ALL DIMENSIONS AND LEVELS TO BE CHECKED ON SITE PRIOR TO COMMENCENT ON SITE.
2. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL AND OTHER DRAWINGS.
3. ALL PIPEWORK TO BE MILDSTEEL GALVANISED.
4. REGULATION SIGNAGE WILL BE ACCOMPANIED WITH ALL FIRE EXTINGUISHERS & HOSE REELS.
5. ALL SERVICES TO HANG FROM TRUSSES AND PERLINS ONLY. NO

FIRE PROTECTION EQUIPMENT	Qty
65 mm Ø HYDRANT CONNECTION	0
30 m HOSE REEL	3
5 kg ALUMINUM HANDHELD EXTINGUISHER	7

Legend

SYMBOL	DESCRIPTION
FE	9.0 kg DCP FIRE EXTINGUISHER
	FIRE MAINS PIPING
	NON RETURN VALVE
	ISOLATING VALVE
FHR	30m FIRE HOSE REEL (25ø CONN.)
FH	45m FIRE HYDRANT (100ø CONN.) COMPLETE WITH 45 m FIRE HOSE, COUPLINGS AND CUPBOARD
CP	FIRE PUMP CONTROL PANEL
PV	PRESSURE VESSEL
PS	PRESSURE SWITCH
P	PRESSURE GAUGE – 2500 KPA
PRV	PRESSURE REDUCING VALVE



GENERAL NOTES:

REVISIONS			
REV	DATE	INIT.	DESCRIPTION
00	04/03/23	TW.	Issued for information

CLIENT

TITLE

FIRE PROTECTION EQUIPMENT LAYOUT

REHAB PROPOSAL

CESA
Consulting Engineers South Africa

RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers

7 King Street,
Southernwood,
East London, 5201
E-Mail: office@rnaconsulteng.co.za

P.O. Box 12359
Amalinda, 5252
Tel: 043 742 0041
Fax: 043 742 3883

DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY: T.WARNE
SCALE: 1 :100
DRAWN: T.WARNE
DATE: 03/11/2023
PRINT DATE: 03/11/2023
CHECKED BY: Travis Warne
REGISTRATION No. 201770017
SIGNED.

DRAWING NO. 2303-M-T-101 FP MWRH
REV No. B

VOLUME 2.3

MECHANICAL INSTALLATION

DOMESTIC WATER INSTALLATION

VOLUME 2.3 PART 1: DOMESTIC WATER INSTALLATION - 1 SCOPE OF WORKS

DOMESTIC WATER INSTALLATION

1. GENERAL

1.1 The Standard for Uniformity in Construction Procurement published in terms of the Construction Industry Development Board (CIDB) Act, 2000 (Act No. 38 of 2000), the Standardized Construction Procurement Documents for Engineering and Construction Works as issued by the CIDB and any other relevant documentation pertaining thereto must be studied and all principles in this regard must be applied to all procurement documentation, practices and procedures.

2. THE CONTRACT

2.1 EARLY WARNING SMOKE DETECTION & SUPPRESSION INSTALLATIONS

The work to be carried out and commissioned by a SAQCC Fire approved installer:

a. Installation of new domestic water reticulation and equipment, as per SANS 10252,
b. Installation of new domestic heat pump, circulation pumps & mixing valves,
c. Testing and Commissioning, as per SANS 10252,
d. Manuals, Drawings, OEM Literature,

2.2 Existing

All installations new.

2.3 Order of The Works

As per the building contractors' program of works.

VOLUME 2.3 PART 2: DOMESTIC WATER TECHNICAL SPECIFICATION

1.0 GENERAL REQUIREMENTS

1.1 Project Specification

1.1.1 This specification applies to, and is to be read in conjunction with the drawings for the hot and cold-water reticulation to the building. Furthermore, this specification covers only the piping within the buildings. The requirements pertaining to the sections of piping from the ring mains to the buildings are covered by the civil engineer's specifications. Similarly, all tap fittings, shower fittings shall be to the architect's specification as detailed elsewhere.

1.1.2 In so far as the conditions contained herein are at variance with anything contained in the drawings, clarification shall be sought from the Engineer though generally the contract shall be interpreted in terms of the information contained on the drawings.

1.2 Occupational Health and Safety Act

1.2.1 All equipment supplied and installed under the contract shall meet the requirements of the Occupational Health and Safety Act (Act No 85 of 1994, (as amended) and all other relevant statutory requirements and the Contractor shall comply with the requirements laid down by the Inspector of Machinery under this Act.

1.3 Notices

1.3.1 The Contractor shall supply and install all notices and warning signs that are required in terms of the Occupational Health and Safety Act, by local by-laws or regulations and by these documents.

This includes notices prohibiting entry to un-authorized persons, etc.

1.4 Drawings

1.4.1 The drawings issued with this specification do not purport to show the exact position, size or details of construction of equipment.

1.4.2 Tenderers must satisfy themselves that the equipment offered by them can be accommodated in the available space and positioned in such a way that access for maintenance, repairs or removal is not obstructed.

1.4.3 Drawings showing any alternative suggestions differing from the Engineer's design must be submitted with tenders.

1.4.5 Approval by the Engineer of drawings submitted by the Contractor shall not relieve him of his liability to carry out the work in accordance with the requirements of the contract documents.

1.4.6 Project Drawings

The following drawings form part of this specification and must be read in conjunction with it:

- 2303-M-T-101 DW MW Domestic Water Equipment Layout

1.5 Quality of Materials

1.5.1 Only materials of high quality shall be used throughout and shall be subject to the approval of the Engineer.

1.5.2 All materials, where applicable, shall conform in respect of quality, manufacture, tests and performance, with the requirements of the SABS / SANS standards, or, where no such standards exist, they shall conform to the appropriate current specification of the British Standards Institution. Materials

manufactured in South Africa shall be used wherever possible.

1.5.3 Imported materials shall comply with the requirements of the relevant SABS / SANS or BS Specifications.

1.5.4 All materials shall be suitable for the site conditions. These conditions shall include weather conditions as well as prevailing conditions during installation and subsequent use.

1.5.5 Should the materials or components not be suitable for use under temporary site conditions the Contractor shall provide at his own cost, suitable protection until these unfavorable site conditions cease to exist.

1.6 **Tests and Inspections - Pressure Testing and Quality Control**

The Contractor shall, at no extra cost to the contract, provide all the necessary equipment and facilities to conduct all tests as directed by the Engineer and or Supply Authorities.

1.7 **Builder's Work**

1.7.1 The Structural Engineer's approval, in writing, must be obtained before any holes or chases are cut in any structural component i.e. brickwork, concrete, steel or timber.

1.7.2 The Contractor shall be responsible for cutting chases and holes in walls and slabs to accommodate his services which must be coordinated in liaison with the Main Contractor who will be responsible for making good.

1.8 **Protection of Equipment**

It shall be the responsibility of the Contractor to protect all reticulation work and fittings that have been tested and accepted by the Engineer in writing during the currency of the contract.

2.0 **SUMMARY OF SCOPE OF WORK**

This specification is for the supply, delivery, installation, testing and commissioning of fully functional internal water reticulation and hot water generating systems as well as any ancillary equipment as described below:

2.1 Hot and cold-water reticulation systems,

2.2 Heat Pump water heating system consisting of 1x 3 kW output heat pump and 250 L storage vessel. Included in the installation are:

- All SANS required safety equipment, operating valves, strainers, etc.
- Circulating pumps between heat pump and storage vessel, as specified or as per recommended minimum by heat pump manufacturer,
- Control Panel,
- Thermosatic mixing valves,
- Insulation,
- Bracketing, supports, drip trays, overflows,
- Standby electrical heating elements, temperature controllers and sensors etc.

2.3 All piping, fittings, piping supports, valves, indirect solar geyser, double skin indirect solar heating coils, flat panel solar heating panels, bracketing, supports, safety devices, drip trays, overflows, standby electrical heating elements, temperature controllers and sensors, circulating pumps, expansion tanks, thermostatically controlled mixing valves.

2.3 All piping, fittings, piping supports, valves, etc.

2.4 The heat pump frames shall be equipped with fastening points etc.

2.5 Maintenance and operating manuals, parts lists, manufacturer's data sheets, as built pipe diagrams showing valve locations, maintenance schedules and list of recommended spares for all equipment.

2.6 Pressure testing of all piping to a pressure of 600kPa, pressure testing of solar panels and geysers after installation to a pressure not exceeding the max. Allowable operating pressure as specified by the manufacturer, operational testing and commissioning of the installation and training of staff in the use, care and maintenance of the equipment. All pressure testing must be witnessed and signed off by engineer.

2.7 All test certificates, electrical compliance certificates and local authority approvals.

2.8 Full maintenance during the 5year guarantee period and full documentation to enable the end user to implement the 5-year guarantee on the solar equipment as specified.

2.9 All other items and requirements, whether specifically mentioned or not, for complete, functional and safe heat pump water heating systems complying with all the relevant codes and specifications.

2.10 All safety notices, safety plan and safety equipment.

the end user to implement the 5 year guarantee on the solar equipment as specified.

2.8 All other items and requirements, whether specifically mentioned or not, for complete, functional and safe solar water heating systems complying with all the relevant codes and specifications.

2.9 All safety notices, safety plan and safety equipment.

3.0 PIPING SPECIFICATIONS

3.1 Copper Piping

Copper piping for domestic water services shall in all cases comply with the requirements of SABS 460 Class 2 and 3. For applications below ground class 3 shall be used, wrapped with Denso tape or similar.

Piping above ground shall be of class 2 and be jointed with capillary soldered fittings. Provision must however be made for union couplings in strategic places.

Pipes shall be firmly and neatly chased in or fixed to walls, as directed by the Principal Agent. Holder bats, saddles or brackets shall be of copper, bronze or brass. Holder batts, clips, etc shall be fixed to timber roof trusses or walls with brass screws. Piping chased into walls shall be wrapped with two layers of brown paper (Kraft) and covered with 3:1 cement mortar mix. Note that wrapping piping with old cement bags is **not** acceptable.

Hot water piping shall be of thin wall hard drawn copper.

3.2 Capillary Soldered Jointing of Copper Piping

3.2.1 Unless otherwise specified, all copper pipes shall be jointed with approved capillary solder type fittings, each joint being formed by cutting the pipe-ends square with a pipe cutter. If the tube end to be soldered is dirty due to cement, bitumen or tape-gum, it shall be mechanically cleaned with steel wool or abrasive paper prior to soldering.

3.2.2 The area to be soldered should then be thinly coated with a self-cleaning into the fitting apply a flame using a LPG Gas blow lamp, (or an electric resistance machine) to the assembly to heat the tube and fitting for not longer than about 10 seconds. Then remove the flame completely and test the temperature of the joint by placing the wire solder at the mouth of the fitting. If the solder does not melt, remove the solder and heat again with the flame for a few seconds more. Test again with the solder. If the solder melts freely, hold the solder at about 45o to the mouth of the fitting, allowing it to melt and with steady pressure the solder will be drawn into the joint. DO NOT overheat the assembly and never hold the solder in the flame. Allow only the heat of the assembly to melt the solder.

3.2.3 Unless otherwise specified use only 2- or 3-mm solid core wire solder, type 97/3 (97% tin and 3% copper.) A careful check should be made to ensure that a ring of solder is visible around the mouth of the fitting.

3.2.4 Solders containing lead are not acceptable and not allowed.

3.2.5 No resin core or acid core solders are acceptable.

3.2.6 Fittings and pipes must be wiped clean with a damp cloth after jointing. Joints that have been fluxed should be soldered within one hour.

3.2.7 Copper pipes specified to be jointed with compression fittings shall be jointed with approved brass metal fittings with coupling nuts and rotary sleeve pieces.

3.2.8 All necessary couplings, connectors, elbows, tees and other fittings as may be required, shall be provided.

3.2.9 Copper pipes to be specified to be jointed with flared type fittings, shall be jointed with approved brass

metal fittings with coupling nuts and cone.

3.2.9 N.B. Capillary, compression and flared type fittings used in jointing copper pipes must be of such a bore as will correctly fit the pipes, to ensure satisfactory jointing.

3.2.10 Compression ring or flared cone fittings shall always be used when making mechanical connections - see Clause 2.7 and Appendix A.

3.2.11 Note that compression type fittings may **NOT** be used with Class 0 copper piping.

3.3 **Brazing of Copper Piping**

3.3.1 If piping is to be brazed self fluxing copper/phosphorous with 2% minimum silver similar to Silbralloy shall be used.

3.4 **Labour Bends**

All labour bends shall be made with an approved bending machine in conjunction with a bending spring to give a uniform and even radius without ripple. Such bends shall be substantially undistorted.

3.5 **Services Chased in to Walls**

3.5.1 Hot water pipes buried in walls and floors shall be wrapped in two layers of stiff brown paper before being built in to aid thermal expansion of the pipes. It is **not** acceptable to use old cement bags for this purpose.

All copper water pipes chased into walls or cast into concrete slabs or columns shall be jointed using **capillary fittings only**.

3.6 **Connections to Wash Hand Basins, Baths, Sinks, etc**

Connection to all fittings (viz. taps, cisterns, machines, etc.) shall be mechanically made and not brazed or hard soldered. In this respect take note of clause 2.2.11 - it will be required that a suitable section of class 1 copper piping be joined to class 0 piping (where this has been used for the reticulation) and that the requisite compression fittings then be fixed to the class 1 copper piping. Jointing compounds (Teflon Pipe Sealer by Loctite or other approved and/or P.T.F.E. tape) shall be lead free and sparingly used.

Small diameter connections off the ring mains may be made using approved saddle connectors in conjunction with "Ball Valves" in accordance with the manufacturer's recommendations.

3.7 **De-Zincification**

All brass fittings and valves shall be certified by the manufacturers to be free from de-zincification and will be subjected to check tests as set out in Appendix A.

3.8 **Pipe Supports and Support Spacing**

All pipe work both vertical and horizontal shall be supported along its length with brackets capable of carrying the combined mass of the pipe and water and shall be spaced at the following maximum centres:

Diameter of Pipe (mm)	15 - 22	28 - 35	42 - 54	76 -108
c/c Brackets/ hangers/ holderbats (mm)	1200	2000	2500	3000

Unistrut: Type P1000 - 3300 (hot dip galvanised)
Brackets: P1108 - P1126 (see standard drawing)

All copper pipes shall be electrically insulated from holder batts, etc with P.V.C. tape wound around the piping.

Other support systems shall be subject to approval by the Engineer or his duly appointed representative.

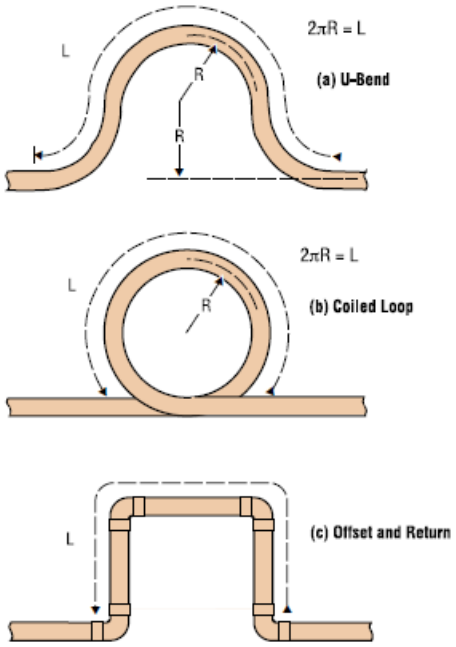
3.9 **Pipe Gradients**

Hot water pipes shall be laid to a minimum gradient of 1 in 200 with auto air release valves positioned at the highest points and vented to the outside.

3.10 **Allowance for Expansion of Piping**

All straight long runs in copper tubing shall be interrupted every 15 m with an offset or an expansion loop.

Expansion loops shall be provided as per standard practice for copper piping. The loop dimensions shall be as a minimum as follows:



Expected expansion in mm		LOOP LENGTH L AND RADIUS R FOR DIFFERENT PIPE Ø		
		15mm Ø	22mm Ø	25mm Ø
12	L	1250	1500	1700
	R	200	230	280
25	L	1700	2000	2400
	R	270	320	380
38	L	2200	2500	3000
	R	350	400	500

3.10 **Pipe Gradients**

Hot water pipes shall be laid to a minimum gradient of 1 in 200 with auto air release valves positioned at the highest points and vented to the outside.

4.0 **VALVES AND FITTINGS**

4.1 **Isolating Valves**

All toilets, kitchen areas etc. shall have a main isolating valve surface mounted inside those areas to aid maintenance.
Isolating valves are not allowed in the roof areas except for connections to geysers as shown on the drawings

Isolating valves on the cold water line shall be of the stop cock pattern up to 42 mm diameter and of sluice or gate valve pattern above 42 mm dia.

Where the static pressure is below 200 kPa all isolating valves on the hot and cold water system shall be of the sluice or gate valve pattern.

"Stop-cocks" or "Ball-valves" shall precede all individual fittings i.e. toilet cisterns, hot water geysers, washing machines etc. All "Ball-valves" shall have hard chrome plated balls seated on Teflon seats.

4.2 **Non-Return Valves**

All non-return valves shall be of the lift type pattern.

4.3 **Automatic Air Release Valves**

Automatic air release valves shall be installed at all high points in the reticulation system where air locks can occur or as detailed by the Engineer.

Air release valves shall be preceded by an isolating valve and vented to the outside.

5.0 **Insulation Materials**

5.1 All hot water piping must be insulated throughout with high density polystyrene R value of not less than 1 m².KW insulation.

5.2 Exterior hot water insulation must be protected with a protective membrane UV-resistant water and weather-resistant, pre-fabricated, self-adhering, sheet-type membrane. Should Tenderers wish to offer any other insulating material in lieu of the above full details must be submitted with tenders. Such alternative insulating materials may only be used if approved by the Engineer or his duly appointed representative.

5.3 The following minimum thicknesses of insulation are required:

Pipe Size	Thickness of Preformed Sections
Up to 40 mm diameter	25 mm
50 mm to 80 mm diameter	40 mm
100 mm diameter and over	50 mm

These minimum thicknesses are given as a guide. Tenderers are required to ensure that the insulation applied to piping is sufficient to ensure that the outside surface temperature of the insulated areas does not exceed 45 Deg C at an ambient air temperature of 20 Deg C.

5.4 Preformed insulation sections must be fixed in place by means of 15 mm wide bands of aluminium or similar non-corroding material applied at the rate of at least two per metre length on insulation.

Pre-formed insulation sections must be ordered specifically for steel or for copper piping. Pre-formed sections made to copper pipe sizes may under no circumstances be used for steel piping and vice-versa.

5.5 Prior to insulation, the piping must be rubbed down where the original primer coat is damaged and all loose rust and scale removed. Thereafter the piping must be touched up with new primer and one coat heat resistant aluminium paint.

5.6 Valves and fittings must be left un-insulated. Pipe insulation adjacent to such fittings must be neatly chamfered off and finished off with sheet metal covers.

No more than 50 mm and no less than 40 mm of piping adjacent to fittings may be left un-insulated.

5.7 Where joints are cut out and repaired, the Contractor must re-paint the new welds prior to the application of insulation.

6.0 HEAT PUMPS

6.1 Heat pumps shall be of the air-to-water, water-to-water or air-to-air.

6.2 Refrigerant to water heat exchangers shall be corrosion resistant and suitable for use with the local water at high temperature and flow velocities.

6.3 Shell and tube condensers are preferred for air to water applications.

6.4 Heat pumps shall be completely self-contained units with stainless steel or epoxy powder coated casings and cladding, suitable for permanent outdoor use where required.

6.5 Condenser and condenser piping circuits shall be properly insulated.

6.6 A condensate drip pan of stainless steel 430 shall be fitted and piped to the nearest building drain, allowing for defrost cycles.

6.7 Heat pumps shall be selected for a maximum compressor running operation of 20 hours per day.

6.8 Reverse cycle automatically controlled defrost shall be provided as standard. Defrost shall be demand controlled and not timer controlled.

6.9 The heat pump shall be suitable for operating with ambient wet bulb temperatures as low as -10ºC and as high as 40ºC.

6.10 Heat pumps for central heating hot water shall heat the water to 60ºC (or as specified) and shall be selected to ensure correct functioning with water inlet temperature as low as 40ºC and as high as 50ºC.

6.11 Heat pumps with a coefficient of performance (COP) of less than 3.0 at ambient wet bulb temperature of 10ºC with secondary circuit inlet temperature 40ºC will not be acceptable.

6.12 Each heat pump shall be fitted with a control and fault indication panel to provide status indication on fault occurrence and operation mode.

6.13 A flow switch shall be fitted to the water or air secondary circuit and the heat pump control interlocked with the flow switch.

6.14 Heat pumps shall be fitted with head pressure control set at ensuring constant 60ºC water supply temperature at all possible water inlet temperatures and flows.

6.15 Compressors shall be well known products of an approved manufacturer. Motor windings shall be suitable for the temperatures experienced in heat pump applications, particularly hermetically sealed units. CH.PWD.XI 4.13 Operating pressures and temperatures shall comply with the manufacturer's recommendations.

6.16 Provision shall be made in the refrigerant circuits for liquid collection during periods of not being in use.

6.17 The compressor shall be interlocked with the evaporator fan/s and the flow switch to prevent operation unless these elements are functional.

6.18 Time delay relay shall be incorporated in the control system of each heat pump to prevent simultaneous start up.

6.19 Each refrigerant circuit shall be fitted with a sight glass, replaceable filter drier, manual liquid shut-off valve, high- and low-pressure switches and pressure gauges.

6.20 The following operating and safety controls shall be provided:
a) High and low refrigerant pressure, manual reset type, safety switch,
b) Low ambient air temperature safety switch,
c) Current overload protection on compressor(s), pump(s), and fans,
d) Compressor short cycling on low demand,

6.21 The standby heater is required with a heat pump application the standby heater shall be switched on automatically on heat pump failure with heating called for.

6.22 Suction and discharge pressure gauges shall be provided on the instrument panel.

6.23 Noise levels shall be under 60db.

6.24 Easily detachable/ openable panels of rigid construction giving access to all working parts of the unit shall be provided.

6.25 All valves, fittings, etc for a complete operational system are not indicated, but must be included in the price.

6.26 Set of temperature gauges included on the send and return pipes.

6.27 All spare parts for the heat pumps should be available from local South African suppliers that keep stock of these items with no lead times for supplying.

7.0 HOT WATER STORAGE VESSEL

7.1 The storage vessel shall be manufactured from at least 2.5 mm thick steel. The geyser shall be internally coated with vitreous enamel capable of withstanding thermal shock and temperatures up to 130°C. Each geyser shall be guaranteed for a period of five years and shall be supplied complete with sacrificial anode suitable for use in water.

7.2 A minimum of 60mm high density polyurethane insulation shall be used between the inner tank and outer cover. The minimum R value of the insulation shall be 2.00m^2.°K/W.

7.3 The solar geysers shall be complete with full jacketed heat exchanger coil radially covering at least 97% of the storage cylinder.

7.4 The cold-water inlet shall be fitted with a sparge pipe to reduce the turbulence and forces on the standby electrical element.

7.5 All pipe connections shall be for diameter of pipe indicated on drawings.

7.6 The standby electrical heating element shall be from Incoloy 825 with a watt density below 8W/cm^2. The element tubes shall be marked with the manufacturers batch number with traceable reference to the material of manufacture that must be Incoloy 825. The element heating capacity shall be stamped on the element boss.

7.7 Each Cylinder shall as a minimum be supplied and installed with the following:

- Earth stud bonded to the earth system as well as earth bonding straps between the hot and cold-water pipes and any metallic cover etc.
- Two vacuum breakers-one on the cold-water supply and one on the hot water outlet. The vacuum breakers must be mounted at least 300mm above the geyser and must be directly over the drip tray.
- Pressure and temperature safety valve complete with independent 22 mm copper piping to a safe position outside the building.
- Drain point and drain valve all mounted above the drip tray.
- 400kPa combination pressure control, expansion and isolating valve with strainer.
- Sacrificial anode.

- Safety thermostat.
- 4x 3 kW Incoloy 825 heating element.
- Electrical isolating switch 1m from geyser complete with glands and flexible wire way to carry wiring to geyser element.
- Bronze ball valves with stainless steel balls and handles to shut off the hot- and cold-water during maintenance.

7.8 The hot water cylinders shall be of a Vertical configuration as appropriate and be capable of accepting an add on heating system which may comprise of solar units, heat pumps or other fuel saving systems.

7.9 Pressure reducing valves shall be S.A.B.S. approved and factory set to maintain a pressure of 100 +/- 10 kPa at the cylinder outlet. The pressure reducing unit shall have as an integral part of that unit:

(a) A pressure release valve with drain connection to protect the cylinder against thermal expansion of the water.

(b) A built-in strainer.

(c) A built-in non-return valve associated with the reducing valve.

(d) Isolating valves fitted to the inlet and outlet sides of the reducing valves.

(e) Combined Temperature, Pressure and Vacuum release valves fitted into the delivery side of the cylinder. The T.P. valve shall have a drain connection built into it and shall be fitted so that the probe is in the cylinder. The drain from the reducing valve and T.P.V. valve shall be laid to a fall of 1:60 minimum and discharge over a gully. The drain pipe shall be a minimum of 22 mm diameter.

(f) Pressure reducing valves shall be installed in accordance with the manufacturer's recommendations and MUST BE POSITIONED FOR EASY MAINTENANCE.

7.10 Certificates are required from the manufacturer of the hot water cylinders confirming at they have been pressure tested to 2,5 times the normal working pressure of 400 kPa gauge.

The hot water cylinders shall be guaranteed from date of practical completion of the installation for a period of three years on the tank, insulation and outer casing and for one year on the electrical components.

8.0 CIRCULATING PUMPS

8.1 The circulating pump shall be mounted with screwed unions so that the pump can be easily removed for servicing.

8.2 The pump body shall be from coated cast iron. The motor shaft, impeller, seal rings, jacket and shaft bushes/bearings shall be from non-corroding material. The motor body shall be from die cast aluminium. Seals and thrust rings shall be from ceramic capable of operating at the specified temperature (110°C) in a 30% propylene glycol solution.

8.3 The pump motor shall be capable of operating at 220/230V AC in an ambient temperature of at least 40°C. The motor insulation shall be at least class H according to NEMA. The protection rating shall be at least to IP44.

8.4 The pumps shall be controlled by a differential temperature controller as described under the section ***BASIC OPERATION OF THE SYSTEM***.

9.0 ELECTRICAL WORK AND CONTROL PANELS

9.1 All electrical work must conform to SANS 1082 and a certificate of conformance (COC) must be issued for the installation. All cables must be secured to galvanised cable baskets. Wiring shall be done inside conduit.

9.2 All conduit, cable baskets and general items must be installed square, vertical and horizontal within the accuracy of a builder's level.

9.3 The main isolator and main circuit breaker shall be double pole for single phase units and triple pole for three phase units. The complete system shall be earthed and the COC shall cover all equipment associated with the installation.

9.4 The electrical supply from the nearest DB shall be done as part of this contract. Cable shall be fixed with saddles at maximum 400 mm intervals or be placed on galvanised cable baskets. All entry and exit points shall be fitted with bushes to prevent wire damage caused by sharp ends. Cable/wire sizes shall conform to the requirements of SANS 1082. All cable and wire loading shall include for all the electrical items plus an additional allowance of at least 20%.

9.5 The temperature controller shall be of the digital electronic type with at least two PT100 temperature sensor inputs. All the control parameters such as differential temperature, dead band and hysteresis shall be adjustable. The PT100 sensors shall be installed into the solar panel inlet and outlet pipes using pocketed temperature sensor wells with sealing glands. The temperature sensor leads shall be at least the three-wire type specifically made for PT100 sensors.

9.6 The controller output shall switch an interfacing relay to control the circulating pump. The pump shall not run if the glycol return temperature is higher than the solar panel outlet temperature.

9.7 The controller shall be placed in an easily accessible position without undue long leads.

9.9 The following equipment should be installed on the control panel as standard equipment for the installation:

a) a main isolating switch;
b) circuit-breaker protection;
c) contactors;
d) thermal overcurrent protection;
e) surge breakers when the installation is exposed to the weather;
f) undervoltage and overvoltage protection in accordance with the relevant standards;
g) phase-failure and rotation protection (three-phase motors);
h) low water level protection;
i) short-circuit protection.

The size and characteristics of the equipment given above shall be determined by the following factors:

a) the electrical fault level of installation;
b) the starting current of pumps;
c) the running current of pumps; and
d) the supply voltage to the installation

10.0 HYDRAULIC TESTING OF WATER PIPES

All water piping shall be hydraulically tested to a pressure equal to 3 times the working pressure but not less than 1000 kPa held for 60 minutes or as long as it takes to inspect every joint in the section being tested, whichever is the greater. The test shall take place in the presence of the Engineer or his duly appointed representative with the results being recorded for inclusion in the practical completion documentation and certification.

Under no conditions shall "leak cure chemicals" be introduced into the reticulation system.

All leaks shall be made good, so that the quality of the original components is not altered and so that the repairs are to the satisfaction of the Engineer or his duly appointed representative.

The Contractor shall provide all the necessary equipment required to carry out the tests on the pipes. Piping shall be tested in sections as the work progresses and before being covered in trenches or wall or floor chases. The completed pipe line shall also be pressure tested just prior to practical completion of the installation.

Failure to comply with the above will result in the contractor being required to expose the piping in question **at his own expense** in order for the pressure tests to be carried out.

11.0 **PAINTING**

All exposed and visible reticulation lines shall be painted by the Contractor. All piping shall be colour coded in accordance with the requirements of the SABS colour code. Identification of the contents of a pipe line shall be by means of painting a colour code on the pipes as required by the SABS colour code and these bands shall be painted on by the Contractor.

The colour coding shall consist of a primary colour only or of primary and secondary colour and shall generally consist of 300mm long primary colour bands painted around the pipe. Where applicable a central 100mm secondary colour band shall be added. Where short lengths of pipes run through occupied areas and in plant rooms the primary colour shall be applied to their entire length.

Where only bands can be applied they shall be at intervals of not more than 6m apart and adjacent to each side of a bend, valve, etc.

Where pipe runs are hidden, i.e. within ducts, false ceilings, etc colour coding bands shall be provided opposite each access panel or similar.

Arrows indicating the direction of flow of the contents of the pipe shall be applied as per colour coding bands.

21.0 **LABELLING OF VALVES, ETC**.

All main stop valves, control valves, etc. shall be labelled by means of rustless metal tags indicating their purpose and the section they isolate, if isolating valves. The tags shall be securely fixed to the valves, and shall be clearly legible.

Letters on labels shall be punched. No painted labels or plastic embossed labels will be accepted.

Alternatively 12 mm wide stainless steel tape embossed labels may be used fixed with copper wire to the relevant valves.

13.0 **WARRANTY**

The contractor is to guarantee all the systems and workmanship for a period of twelve (12) months against any defects (latent or obvious), non-conformance and/or failure from date of first delivery. The glycol expansion tanks, indirect solar geysers, solar panels and brackets shall carry a guarantee of 5 years. Documentation to support such a guarantee on the equipment shall be provided for safe keeping by DRPW. Any defects and/or failure that may occur or become evident during the guarantee period shall be rectified within twenty four (24) hours after being notified of the occurrence of the defect. In the event that such failure and/or defect constitute a threat to the health and safety of the user and/or occupants, the contractor shall take immediate steps to rectify the fault. Any faulty item that becomes evident during the guarantee period shall be replaced with new and not repaired. The contractor shall also submit to the Department of Public Works AND school management a full report describing the nature of failure, cause of failure and possible methods to prevent future failure.
In the event that the contractor does not attend to such defects after being notified, the Department of Public Works and/or user reserve the right to effect the rectification of the defect and recover the costs thus incurred from the contractor.

14.0 **MAINTENANCE**

Immediately after each interim or final practical completion inspection all defects noted shall be rectified.

Latent defects appearing within three (3) months or as specified, shall be rectified by the Contractor at no charge to the client.

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING
PART 3 DOMESTIC WATER INSTALLATION

PROVISIONAL BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BILL NO. 1 : PRELIMINARY AND GENERAL				
1.1	Compliance with General Conditions of Contract : Insurances, Sureties, etc as outlined in the Principal Contractor's Preliminaries.				
	Fixed	No.	1		
	Value Related	No.	1		
	Time Related	No.	1		
1,2	Establish on Site and provision of buildings and storage facilities including de-establishment of site, cleaning and tidying up after completion of contract				
	Fixed	No.	1		
	Value Related	No.	1		
	Time Related	No.	1		
1,3	Tools and equipment, Communication, transport.				
	Fixed	No.	1		
	Value Related	No.	1		
	Time Related	No.	1		
1.4	Contract Management, Company overheads and supervision of the Works including attendance of site meetings (2 per month)				
	Fixed	No.	1		
	Value Related	No.	1		
	Time Related	No.	1		
1,5	Provision of all drawings and manuals as specified including As-Installed drawings	No.	1		
1,6	Liaison with Local Supply Authority, compliance with OSH Act, Local By-laws and any other statutory regulations	No.	1		
1,7	Any additional item not specifically mentioned or included in the Bills of Quantities which the Tenderer may wish to detail. (Specify)	No.	1		
	Total Carried forward to Summary Page				

PROVISIONAL BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2,0	**BILL NO. 2 : HOT & COLD WATER PIPING**				
	Copper Piping Copper piping above ground to SANS 460 class 2 installed in accordance with the specification, drawings and manufacturer's recommendations. Pipe hanger & support bracket spacing to be as per the table on the drawings. Piping - chased into brickwork must be wrapped in two layers of kraft paper as specified.				
2,1	76 mm dia	m	0		
2,2	54 mm dia	m	0		
2,3	42 mm dia	m	0		
2,4	35 mm dia	m	0		
2,5	28 mm dia	m	25		
2,6	22 mm dia	m	145		
2,7	15 mm dia	m	168		
	Bends Capillary soldered bends: (Maksal or equal and approved)				
2,8	76 mm dia	No.	0		
2,9	54 mm dia	No.	0		
2,10	42 mm dia	No.	0		
2,11	35 mm dia	No.	0		
2,12	28 mm dia	No.	9		
2,13	22 mm dia	No.	42		
2,14	15 mm dia	No.	84		
	Tees Capillary soldered tees: (Maksal or equal and approved)				
2,15	76 mm dia	No.	0		
2,16	54 mm dia	No.	0		
2,17	42 mm dia	No.	0		
2,18	35 mm dia	No.	0		
2,19	28 mm dia	No.	3		
2,20	22 mm dia	No.	20		
2,21	15 mm dia	No.	21		
	Isolating valves Ball valves, full bore with lever, hard chrome plated balls and teflon seats				
2,22	54 mm dia	No.	0		
2,23	42 mm dia	No.	0		
2,24	35 mm dia	No.	0		
2,25	28 mm dia	No.	3		
2,26	22 mm dia	No.	10		
2,27	15 mm dia	No.	26		
	Total Carried forward to Next Page				

PROVISIONAL BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Total Carried forward From Previous Page				
	Pipe hangers and brackets				
2,28	76 mm dia	No.	0		
2,29	54 mm dia	No.	0		
2,30	42 mm dia	No.	0		
2,31	35 mm dia	No.	0		
2,32	28 mm dia	No.	13		
2,33	22 mm dia	No.	73		
2,34	15 mm dia	No.	84		
	Non Return Valves				
2,35	28 mm dia	No.	1		
2,36	22 mm dia	No.	3		
2,37	15 mm dia	No.	2		
	Vacuum Breakers				
2,38	28 mm dia	No.	1		
2,39	22 mm dia	No.	7		
2,40	15 mm dia	No.	4		
	Insulation All exposed hot water piping to be insulated with R value or not less than 1 m².KW				
2,41	76 mm dia	m	0		
2,42	54 mm dia	m	0		
2,43	42 mm dia	m	0		
2,44	35 mm dia	m	0		
2,45	28 mm dia	m	25		
2,46	22 mm dia	m	145		
2,47	15 mm dia	m	168		
	Reducers				
2,48	76 to 54 mm dia	No.	0		
2,49	54 to 42 mm dia	No.	2		
2,50	28 to 22 mm dia	No.	4		
2,51	22 to 15 mm dia	No.	22		
	Braided Flexible Hoses				
2,52	15 mm	m	24		
	Bib tap				
2,53	15mm Bib tap	No.	1		
	Total Carried forward to Next Page				

PROVISIONAL BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Total Carried forward From Previous Page				
	Pressure Reducing Valve				
5,54	28 mm	No.	1		
2,55	22 mm	No.	1		
2,56	15 mm	No.	2		
	Pressure Balancing Valve				
2,57	28 mm	No.	1		
2,58	22 mm	No.	1		
	Sundry Items				
2,59	Solder, flux, consumables required to complete the installation	Lot	1		
2,60	Connection to sanitary ware fittings	No.	25		
2,61	Flushing & cleaning pipework system	m	135		
2,62	Pressure testing of parts of the installation	No.	8		
2,63	Pressure testing complete installation	No.	1		
2,64	Painting of piping	m	338		
2,65	Labelling of valves & piping	Lot	1		
2,66	De-zincification tests	Lot	1		
	Manhole				
2,67	Supply, install, test and commission domestic water manhole 400 x 400 mm with hinged cover.	No.	4		
2,68	Supply, install, test and commission domestic water manhole 1000 x 1000 mm with hinged cover.	No.	0		
	Connection to Civil Mains				
2,69	Trenching and laying of pipe from installation to civil main, incl backfilling.	m	55		
2,70	Connection of domestic water main to civil main	No.	4		
	Coring Through Brickwork				
2,71	Core through 220 mm brick work, 100 mm diam core.	No	9		
	Training of Staff				
2,72	Training of staff on operation of units; ; location of equipment a	No	1		
	Total Carried forward to Summary Page				

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING
PART 3 DOMESTIC WATER INSTALLATION

BILL NO. 3: WATER HEATING EQUIPMENT

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3,0	**BILL NO. 3 : WATER HEATING EQUIPMENT**				
	Heat Pump Supply and Install: High Temperature Heat Pump, scroll type incl. refrigeration controls, micro processor, electrical panel & switchgear, coils, heat exchangers etc., all as specified.				
3,1	Heat pump 3 kW heating capacity High Temp, stainless steel.	No.	1		
3,2	Domestic 400 Kpa geyser Heat Pump Ready	No.	1		
3,3	Circulation pump 8 l/min at 450 kPa	No.	1		
3,4	Electrical control panel	No.	1		
3,5	Corrosion treatment, bly Gold, Blue Chem or equally approved.	Lot	1		
	Hot water Circulation Pump				
3,6	Supply, install, test and commission domestic hot water circulation pump, Q = 0.67m³/hr at 354 kPa.	No.	3		
	Thermoscopic Mixing Valve Supply and Install:				
3,7	Thermoscopic mixing valve, to mix water down from 85deg C to 55deg C under sanitation cycle, flow rate of up to 190l/min.	No.	1		
	Under Counter Water Heater Supply and Install:				
3,8	10 L under counter water heater	No.	1		
	Domestic Electrical Geyser				
3,9	150 Litre 600 Kpa electrical geyser, incl. all safety valves, tray, vacuum breakers etc.	No.	1		
	Total Carried forward to Summary Page				

RNA CONSULTING ENGINEERS
MOTHERWELL CHC
ALTERATIONS & ADDITIONS TO EMS BUILDING + NEW REHAB
PART 3 DOMESTIC WATER INSTALLATION

BILL NO.	DESCRIPTION	AMOUNT
1	**BILL NO. 1 : PRELIMINARY AND GENERAL**	
2	**BILL NO. 2 : HOT & COLD WATER PIPING**	
3	**BILL NO. 3 : WATER HEATING EQUIPMENT**	
	SUBTOTAL	
	CONTINGENCY 2,5%	
	SUBTOTAL	

REMINDER NOTE

The Total Price including Main Contractor's Mark-up which excludes VAT, must be carried over to the final summary in Volume 1 and all fixed amounts shown in the price schedule must be included therein. No adjustments will be made for any failure by Tenderers to include the fixed amounts in the Total Price for this particular installation.

SUB-CONTRACTOR'S NAME: …….

DATE: ……

SIGNATURE: ……

N.B. The above-named Sub-Contractor is to be employed on this contract. Substitute Sub-Contractors are not acceptable.

The price submitted include all Main Contractor's 'Profit and Mark up BUT Exclude the VAT when transferring price to Volume 1 of the Final Summary Total of the Main Contractor's Document

HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

SCHEDULE OF MATERIALS OFFERED

The Tenderer must complete the following schedules and submit them with the priced Bill of Quantities.

The schedules will be scrutinised by the Engineer and should any material offered not comply with the requirements contained in the specification, the Contractor will be required to supply material in accordance with the contract at no additional cost.

NB : Only one manufacturer's name to be inserted for each item.

Item	Material	Make or trade name	Country of Origin
1.	Copper Piping		
2.	Isolating Valves		
3.	Strainers		
4.	Non-Return Valves		
5.	Safety Valves		
6.	Vacuum Breakers		
7.	Balancing Valves		
8.	Heat Pump		
9.	600 KPa Hot Water Storage Vessels		
10.	Geyser Trays		
11.			
12.			
13.			
14.			
15.			

NOTE : Tenderers are to note that under no circumstances may materials be installed other than offered in the above materials schedule, which has been approved and accepted by the Contractor.

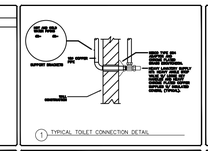
Should the successful tenderer wish to supply materials other than those originally offered, prior written approval must be obtained from the Contractor before any orders are placed.

Legend	
SYMBOL	DESCRIPTION
FE	9.0 kg DCP FIRE EXTINGUISHER
	FIRE MAINS PIPING
	NON RETURN VALVE
	ISOLATING VALVE
FHR	30m FIRE HOSE REEL (25ø CONN.)
FH	45m FIRE HYDRANT (100ø CONN.) COMPLETE WITH 45 m FIRE HOSE, COUPLINGS AND CUPBOARD
CP	FIRE PUMP CONTROL PANEL
PV	PRESSURE VESSEL
PS	PRESSURE SWITCH
P	PRESSURE GAUGE – 2500 KPA
PRV	PRESSURE REDUCING VALVE

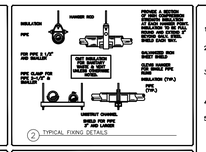
SANS 10400 NOTES:

Hot water pipe insulation:
- Minimum 0.04 W/(m².°C)
- 25 mm ø pipes = 25 mm thickness
- 25 to 80 mm ø pipes = 40 mm thickness

Legend	
DESCRIPTION	SYMBOL
ISOLATING VALVE	
BALANCING VALVE	
SAFETY VALVE	
STRAINER	
NON RETURN VALVE	
AUTOMATIC AIR VENT	
TEMPERATURE GAUGE	
PRESSURE GAUGE	
PIPE DROPPER FROM CEILING VOID CHASED INTO BRICKWORK	
WATER METER	



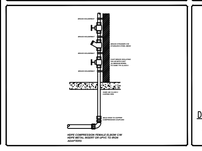
1 TYPICAL TOILET CONNECTION DETAIL



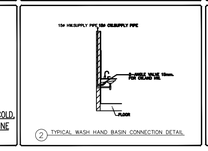
2 TYPICAL FIXING DETAILS

INSTALLATION NOTES:

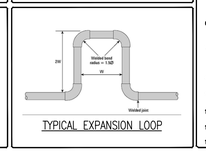
1. ALL DIMENSIONS AND LEVELS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORK
2. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL AND OTHER DRAWINGS
3. ALL PIPING CHASED INTO WALLS TO BE SANS 460 GRADE 1 AND MUST BE WRAPPED WITH BUILDER'S PAPER PRIOR TO WALL CHASES BEING COVERED
4. ALL PIPING TO BE PRESSURE TESTED TO 600kPa PRIOR TO BEING CONCEALED IN WALL CHASES ETC
5. ALL COLD WATER FLOW AND RETURN LINES TO BE INSULATED WITH THERMAFLEX. EXPOSED HOT WATER PIPES TO BE INSULATED WITH PREFORMED FIBRE GLASS, WITH CANVAS WRAPPING AND METAL CLADDING. HOT WATER PIPES IN SHAFTS & CEILINGS TO BE CLADDED WITH PREFORMED FIBRE GLASS AND CANVAS WRAPPING ONLY.
6. BALL TYPE SHUT-OFF VALVES TO BE FITTED IN ALL BRANCHES TO WHB's , BATHS, SHOWERS AND TOILETS (i.e. HOT & COLD WATER PIPING)
7. PIPING TO RUN IN ROOF SPACE FIXED WITH HOLDER BATTS ETC AS DESCRIBED IN THE SPECIFICATION (NOTE THAT NO GALVANISED HOLDER BATTS MAY BE USED TO SUPPORT COPPER PIPING)
8. PIPE SUPPORT SPACING TO BE AS INDICATED IN THE STANDARD SPECIFICATION
9. MANUAL AIR BLEED VALVES TO BE FITTED AT ALL HIGH POINTS IN THE HOT AND COLD WATER PIPING
10. ALL HOT TAPS TO BE ON LHS AND COLD TAPS ON RHS OF FITTINGS
11. REFER TO GENERAL NOTES FOR DRAWING REFERENCE PURPOSES.
12. FLOW LIMITERS OF 6 L/MIN TO ALL BASINS AND SHOWERS



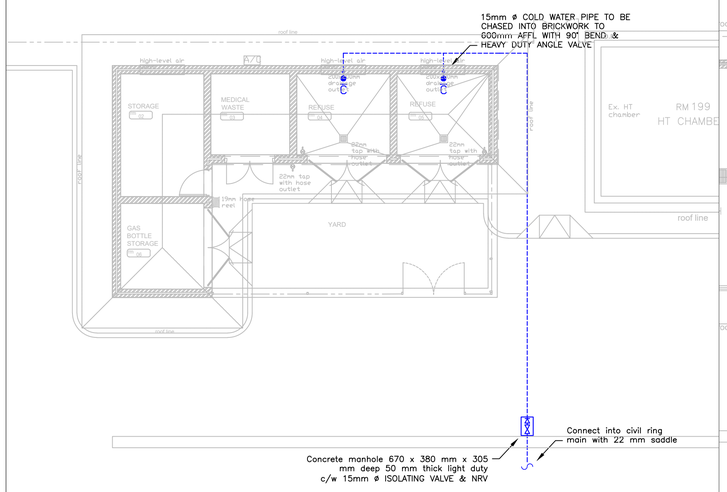
DETAIL OF BALANCING & SHUT-OFF VALVES IN COLD, HOT WATER FLOW & HOT WATER RETURN LINE

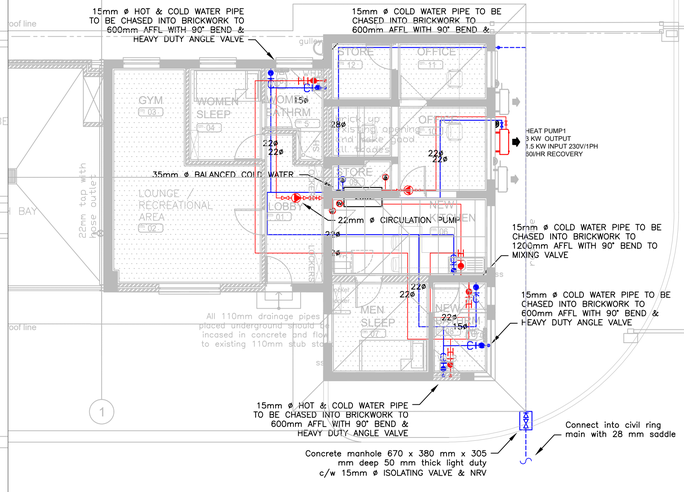


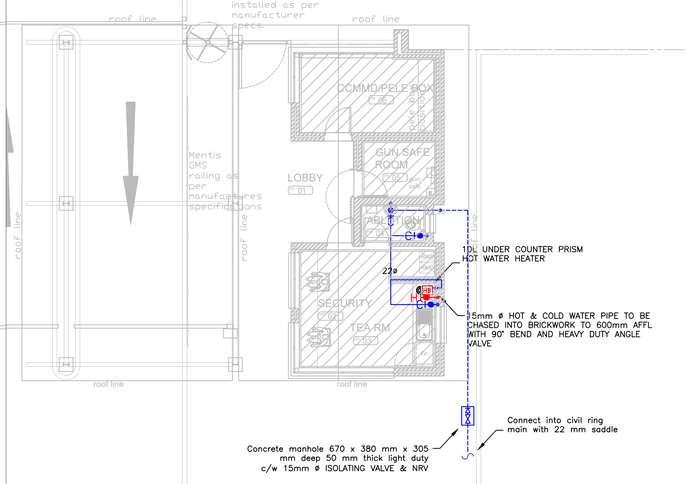
2 TYPICAL WASH HAND BASIN CONNECTION DETAIL



TYPICAL EXPANSION LOOP







GENERAL NOTES:

REVISIONS			
REV	DATE	INIT.	DESCRIPTION
00	04/03/23	TW.	Issued for information

CLIENT

TITLE

DOMESTIC WATER EQUIPMENT LAYOUT

EMS / GATEHOUSE / REFUSE & STORAGE PROPOSAL

CESA
Consulting Engineers South Africa

RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers

7 King Street,
Southernwood,
East London, 5201
E-Mail: office@rnaconsulteng.co.za

P.O. Box 12359
Amalinda, 5252
Tel: 043 742 0041
Fax: 043 742 3883

DESIGN	TENDER	CONSTRUCTION
	✓	

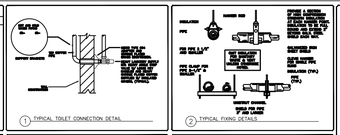
DESIGNED BY:	T.WARNE
SCALE	1 :100
DRAWN	T.WARNE
DATE	03/11/2023
PRINT DATE	03/11/2023
CHECKED BY:	Travis Warne
REGISTRATION No.	201770017
SIGNED.	
DRAWING NO.	2303-M-T-101 DW MW
REV No.	B

Legend	
SYMBOL	DESCRIPTION
FH	9.0 kg DCP FIRE EXTINGUISHER
	FIRE MAINS PIPING
	NON RETURN VALVE
	ISOLATING VALVE
FHR	30m FIRE HOSE REEL (25ø CONN.)
FH	45m FIRE HYDRANT (100ø CONN.) COMPLETE WITH 45 m FIRE HOSE, COUPLINGS AND CUPBOARD
CP	FIRE PUMP CONTROL PANEL
PV	PRESSURE VESSEL
PS	PRESSURE SWITCH
P	PRESSURE GAUGE – 2500 KPA
PRV	PRESSURE REDUCING VALVE

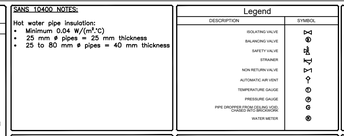
SANS 10400 NOTES:

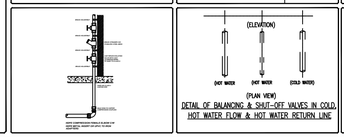
Hot water pipe insulation:
- Minimum 0.04 W/(m².°C)
- 25 mm ø pipes = 25 mm thickness
- 25 to 80 mm ø pipes = 40 mm thickness

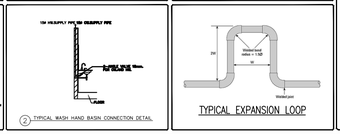
Legend	
DESCRIPTION	SYMBOL
ISOLATING VALVE	
BALANCING VALVE	
SAFETY VALVE	
STRAINER	
NON RETURN VALVE	
AUTOMATIC AIR VENT	
TEMPERATURE GAUGE	
PRESSURE GAUGE	
PIPE DROPPED FROM CEILING VOID, CHASED INTO BRICKWORK	
WATER METER	



2 TYPICAL FIXING DETAILS


1 TYPICAL TOILET CONNECTION DETAIL


(ELEVATION)
(HOT WATER) (HOT WATER) (COLD WATER)
(PLAN VIEW)
DETAIL OF BALANCING & SHUT-OFF VALVES IN COLD, HOT WATER FLOW & HOT WATER RETURN LINE


2 TYPICAL WASH HAND BASIN CONNECTION DETAIL

TYPICAL EXPANSION LOOP

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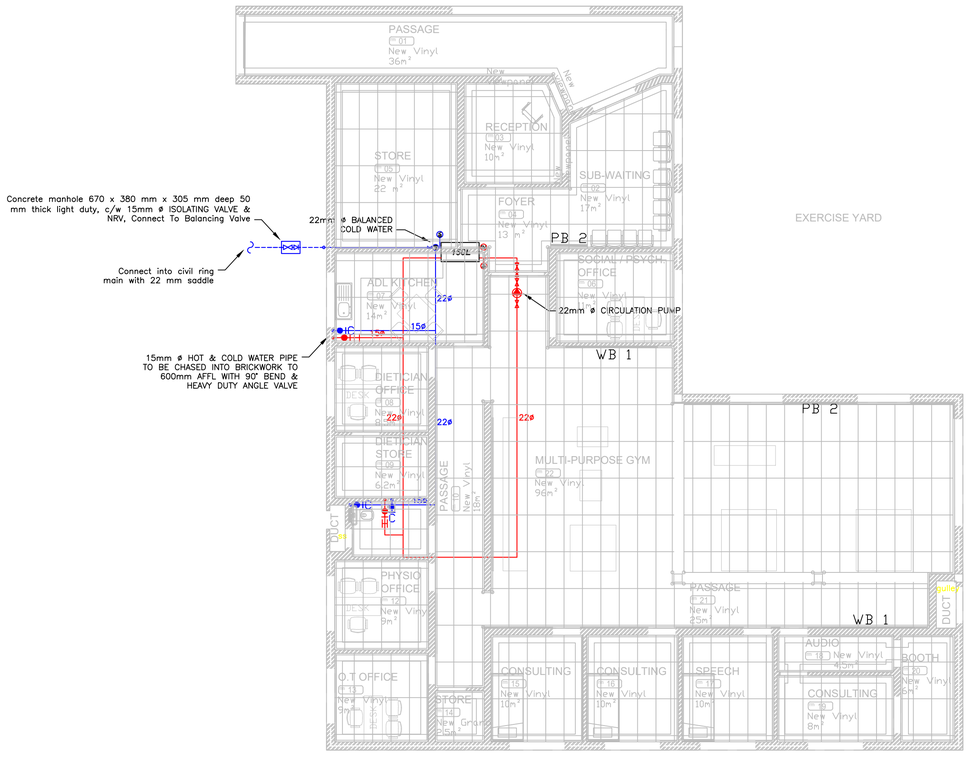


GENERAL NOTES:

REVISIONS			
REV	DATE	INIT.	DESCRIPTION
00	04/03/23	TW.	Issued for information

CLIENT

TITLE

HVAC
EQUIPMENT LAYOUT

REHAB PROPOSAL

CESA
Consulting Engineers South Africa

RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers

7 King Street,
Southernwood,
East London, 5201
E-Mail: office@rnaconsulteng.co.za

P.O. Box 12359
Amalinda, 5252
Tel: 043 742 0041
Fax: 043 742 3883

DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY: T.WARNE		SCALE 1 :100
DRAWN T.WARNE	DATE 03/11/2023	PRINT DATE 03/11/2023
CHECKED BY: Travis Warne		
REGISTRATION No. 201770017		
SIGNED.		
DRAWING NO. 2303-M-T-101 HVAC MWRH		REV No. B

5. PART C3 - SCOPE OF WORKS

C3.1 SCOPE OF WORKS

DESCRIPTION OF THE WORKS:

The Motherwell Community Health Centre is an existing facility in the heart of Motherwell. It was designed and built in the late 80's and has been serving the ever-growing community of Motherwell ever since. It is a face brick building with concrete tiled roof. The site is well located, directly off the main arterial route leading into Motherwell – on Tynira Street and is easily accessible.

Alterations and Additions will include: New 590m2, Alterations 118m2

- EMS Building alterations 118m2
- EMS Building extension for support facility (ambulance wash and parking) 94m2.
- New gatehouse 46m2.
- New refuse/waste stores 54m2
- New rehabilitation building 396m2

External Works
Alterations and Additions to Roads and Parking Areas
New Security Fencing
Additions to soil drainage
Additions to water reticulation including new 116KL High Level water tank.
Additions to stormwater.
Relocation of Prefab containers on site to allow for additional roads and parking.

Electrical and ICT Installation to additional and refurbishes areas.

· Replacement of existing Distribution Boards MDBs and SDBs;
· Removal and disposal of existing electrical installations
· New LED lighting in rooms to be refurbished;
· New power points on the walls and ceiling voids in rooms to be refurbished;
- New Electrical works for New Buildings.

HVAC installation
Installation of Air Conditioning equipment:
· Split type air conditioning inverter heat pump units,

Fire Protection Installation
- Installation of new hose reel, and extinguisher equipment,
- Installation of new galvanised steel water reticulation,

Domestic Water Installation to new areas

Health and Safety

· Site camp development and demarcation

· Demarcation and hoarding of construction areas, separation from operational CHC operations

· Installation of required risk based and legislated signage

· Implementing good hygiene to prevent biological agents exposure

· Control access to construction areas

· Identification of known and unknown services

· Safe demolition including Asbestos removal as per Regulations

· Safe working from heights, inclusive of ladders, scaffolding and Mobile Elevated Work Platforms

· Reduction of noise, dust and vibration exposures

· Control and regular removal of waste generated from construction works

· Safe handling of chemicals

· Management of fire risks on site

· Safe stacking and storage of articles and equipment

· Creating safe and clear walk and pathways

· Safe handling, use and storage of works equipment

· Safe handling, use and installation of electrical and mechanical works

· Use of lock out and tag of systems

· Issue, handle and correct use of PPE

The existing Motherwell CHC will remain functional.

SMME Specifications

The following specification governs the employment of SMMEs as Domestic Sub-Contractors and is binding to the Contractor. Its purpose is to enhance the methods that are implemented to improve the development of local SMMEs.

This specification is to be read in conjunction with following applicable documents:

(a) Any applicable form of contract used between the Contractor and DOH (The JBCC Principal Building Agreement (PBA) Edition 6.2 (May 2018)
(b) Tender Document for the appointment of the Contractor;

The following specification governs the employment of SMME subcontractors:

1. SMME Subcontract

The Contractor shall appoint all SMME subcontractors in terms of an agreement that provides for fair and equitable conditions of contract compatible with the JBCC PBA Edition 6.2 (May 2018). All work and the associated risks related to SMME subcontractors shall be the direct responsibility of the Contractor.

2. SMME Subcontract Target

Thirty Percent (30%) of the Tender Value (excluding Socio Economic Value, CPAP/escalation, Contingency, OHS, Preliminaries, CIDB B.U.I.L.D Program and Value-Added Tax (VAT)) must be executed by SMMEs. It

is compulsory for the Principal Contractor to achieve this target as the principal contractors performance against this target will be monitored.

Contractors will be required to supply verified monthly statements/schedules (verified by their auditors) indicating the % achieved for that month. A cumulative schedule also needs to be maintained for each month that has passed.

3. A SMME subcontractor is defined as follows:
    a. A targeted enterprise;
    b. A business concern operating in any business sector and which complies with the qualitative and quantitative criteria outlined in the Schedule contained in the National Small Business Act (Act No. 102 of 1996);
    c. An entity which must have an active registration status with the CIDB, targeted CIDB Grade designations 1 to 6;

4. Procurement and contracting of SMME subcontractors

The Appointed contractor must take note that the P&G main section document allow for the appointment of an SMME Mentor or Mentors if more than one are require.

After the Award of the Contract, the Contractor will have to start the process of procuring and subcontracting SMME subcontractors to achieve the tendered SMME Participation Goal of 30%. This contracting process for subcontracting SMMEs must commence after the commencement of the Contract Period and shall be completed prior to the commencement of the Contraction Period. It is a condition that the Employer shall not give the Contractor possession of site until the above process is and the appointment of SMME subcontractors is complete. The Contractor shall take due cognisance to also programme this SMME contracting process in its detailed construction programme.

The SMME Subcontractors must be procured as follows:

4.1. The identification of potential SMME's subcontractors to tender for the SMME packages shall be determined by the recognized community representatives/ structures, involving but not be limited by the Local Ward Councillor, the Social Facilitator and the PSC.
4.2. A competitive tender process obtaining at least three tenders from SMME subcontractors for each SMME package.
4.3. The SMME package documents will be prepared by the representative PSP's in conjunction with the Contract. The PSP's will provide the measured works portion of the tender document, to which the Contractor shall include his conditions of subcontract and requirements.
4.4. The tender documents will issued to the SMME subcontractors to tender.
4.5. The Contractor shall facilitate a mandatory briefing session with the invited SMME subcontractors. The briefing session must be attended by the representative PSP's including the OHS Agent and social facilitator.
4.6. The Contractor shall provide assistance to the prospective SMMES and ensure;
4.6.1. They understand the liabilities and responsibilities of the subcontract.
4.6.2. Scope of the SMME package
4.6.3. Procedures for submitting tenders.
4.6.4. Understanding the pricing and implications of the tendered rates.
4.6.5. Procedures and basis of tender adjudication.
4.6.6. Subcontract conditions and implications when awarded.
4.7. Adjudication
4.7.1. Contractor to receive all tenders at a specific location, in sealed tender submissions, placed in a tender box provided by the Contractor prior to the closing date and time. Late tenders will not be considered.
4.7.2. Contractor to maintain a tender submission register, recording tender receipt.
4.7.3. Tenders to be evaluated by the Contractor in terms of the tender conditions and submit a draft tender evaluation to the PA within 5 working days of the closing of tenders.

4.7.4. The PA will have the right to
4.7.4.1. Interview the tenderer
4.7.4.2. Clarify any aspect of the tender
4.7.4.3. Verify the eligibility of the tenderer
4.7.4.4. Conduct a rate analysis to clarify rates and prices.
4.7.5. The Contractor shall provide reasonable opportunity to tenderers, to correct patent errors, without altering the total tendered sum.
4.8. Award of tender
The Contractor shall
4.8.1. Notify unsuccessful tenderers
4.8.2. Award/ appoint the SMME subcontractor
4.8.3. Compile and sign the SMME subcontract agreements.

5. Construction and close out

It is assumed that the Principal Contractor has allowed adequate time in the construction programme for training of SMMEs and included such training costs. The training shall include but not limited to:

- Compilation and maintenance of the Occupational Health, Safety and Environmental File and compliance with Construction Regulations by a CHS Officer (CHSO) registered with the South African Council for the Project Management Professions.
- Setting up and Maintaining Cash Flow, Construction Programme and Method Statement.
- Setting up and Maintaining Quality Management Plan and Risk Register.
- Basic Conditions of Contract of the relevant contract and setting up short term contracts for labour as per the main contract.
- Balancing of Bill of Quantities, Financial Control and Management.
- Technical Training.
- Methods of Measuring Resource Productivity.
- Measurement of Work Done, Interim Payment Certificate and Compilation.
- Dispute Avoidance and Resolution Procedures.

The Principal Contractor shall be responsible for the compilation of each subcontract agreement and ensuring that the terms and conditions are consistent with all requirements therefore as are specified in or reasonably to be inferred from the provisions of this Contract. All costs associated with the tender process including the conclusion of the agreement are for the Principal Contractor's account.

The Principal Contractor shall on a fulltime basis closely mentor, manage and supervise all SMMEs and shall manage, guide and assist each SMME in all aspects of management, execution and completion of its subcontract. This shall typically include the on-site productivity planning and management of:

- Materials Management
- Cost Management
- Contract Management
- Health & Safety Management
- Quality Management
- Communication Management

Payment for such on-going assistance is to be included in the Preliminaries and General section of the Bills of Quantities.

The Principal Contractor shall manage all SMME's throughout the construction period and will assist in the compilation of the final account of each SMME package. Payment for such on-going assistance is to be included in the Preliminaries and General section of the Bills of Quantities.

The Principal Contractor shall, on completion of each and every subcontract completed in accordance with the provisions of this Specification, issue free of charge to the SMME within 7 days of the completion of the subcontract, a Certificate of Experience on a single A4 page stating:

(i) Contract title;
(ii) Contractor's full name and address;
(iii) Principal agent's name and address;
(iv) SMME name and address;
(v) Scope or extent of the subcontract works;
(vi) Value of the subcontract works;
(vii) Applicable level of the subcontract;
(viii) Duration of the subcontract;
(ix) Date of completion of the subcontract; and
(x) Description of the training undergone by the SMME;

No provision or requirement set out in this Specification shall be deemed to relieve the Principal Contractor of any liability or obligation under the contract between the DoH and the Principal Contractor, and the Principal Contractor shall be fully liable for the acts, defaults and neglects of any SMMEs, his agents or employees, as fully as if they were the acts, defaults and neglects of the Principal Contractor, his agents or employees.

The Principal Contractor is not to permit SMME subcontractors to further subcontract on any other conditions than those applying in the project specification to subcontractors or SMME subcontractors.

The Tenderer is to price all associated administrative, supervision, mentoring costs, profit and attendance in the relevant sections of the Preliminaries as no claims for additional costs will be entertained.

These are monetary provisions only and the use, value and payment thereof are subject to adjustment based on actual costs through contractually approved variation orders calculated in terms of the prescribed contractual directives.

The SMME Packages involves the following works:

Masonry
Plastering
Removal of Trees
Demolitions and Removal of Existing Works
Parking Areas and Roads
Perimeter Fencing

Sequence of Works:

The existing gatehouse and EMS will have to remain functional during construction. To this extent the contract will have to allow to build the new gatehouse and refuse buildings first, before proceeding to do the alterations and additions to the existing EMS and gatehouse building. The Rehab Buildings can be done concurrently.

C3.2 RESTRICTIONS AND CONSTRAINTS

- The completion of the project is urgent and work shall be executed during normal working hours i.e. 7h30 till 17h00 weekdays only. Work required to be executed outside of these hours must be arranged with the Facilities Manager and the Chief Executive of the CHC, in advance.
- Noise must be kept to a minimum and within acceptable levels at all times.
- All shut-offs and tie/cut-ins to existing services must be arranged in advance with the Facilities Manager and a methodology with appropriate mitigation of risks must be prepared by the contractor and submitted to the relevant Professional discipline in advance, for approval.
- Dust emanating from the work site must be controlled at all times.

C3.3 OPERATIONAL PROTOCOLS

- Security is a priority, and the site shall be kept safe at all times.
- The approved Health and Safety plan shall be adhered to at all times
- All staff members of the contractor shall wear PPE at all times
- All staff members of the contractor shall be specifically identifiable at all times and to this end shall wear a predetermined coloured overall to be able to enter and work on the site.
- Regular meetings, the frequency of which is to be determined, shall be held with the management of the CHC to always ensure a cohesive spirit of co-operation
- The successful contractor must take into account that other contractors may be busy with construction in close proximity to the works and allowance must be made in the contractor's submission to accommodate these parties.

C3.4 ACCESS AND SITE ESTABLISHMENT

- Prospective bidders are to fully familiarize themselves with the site and access to the site and restricted area for site establishment. Allowance for temporary construction access etc. shall be deemed to be included in contractor's price/bid. Prospective bidders are to familiarize themselves with the site as no additional costs shall be entertained.
- No Contractor's representatives or worker's are allowed to sleep at establishment area or with in CHC complex.
- The Contractors are required to price for establishment and de-establishment in the Preliminaries section of the Bills of Quantities.

C3.5 ACCEPTANCE OF TENDERS

- The Employer is not bound to accept the lowest, or any tender, or any portion of any tender

C3.6 MINIMUM WAGE

- The Contractor shall adhere to "The national minimum wage determined by the Minister in accordance with the National Minimum Wage Act (NMWA)", and yearly pronounced increases for duration of contract.

C3.7 TEMPORARY WORKS

- All temporary work to comply with the Construction Health and safety Act (Act 85 of 1993) and its regulations.

C3.8 EMPLOYER'S DESIGN

N/A

C3.9 DESIGN BRIEF

N/A

C3.10 DRAWINGS

- **LIST OF DRAWINGS FOR WHICH REFERENCES ARE MADE IN THE BILLS OF QUANTITIES** :

  All drawings applicable are included as part of the drawings section

5.1. C3.11 OHS SPECIFICATION

PROJECT SPECIFIC OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

Issued in terms of the Occupational Health and Safety Act, 1993
Construction regulations 2014

EASTERN CAPE DEPARTMENT OF HEALTH

PROJECT TITLE	**MOTHERWELL COMMUNITY HEALTH CENTRE – PHASE 1 - ALTERATIONS AND ADDITIONS TO EMS BUILDING, GATEHOUSE, REFUSE AND REHAB BUILDINGS.**
BID NO	
LOCATION	**3239 – MOTHERWELL CHC**

INDEX

PROJECT SPECIFIC OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

LIST OF ABBREVIATIONS

AIA	Approved Inspection Authority
BoQ	Bill of Quantities
CC	Compensation Commissioner
CHS	Construction Health and Safety
CHSA	Construction Health and Safety Agent
CHSO	Construction Health and Safety Officer
CR	Construction Regulations (Gazette 10113 of 07/02/2014)
ECDOH	Eastern Cape Department of Health
DMR	Driven Machinery Regulations
DoL	Department of Labour
FEMA	Federated Employers Mutual Association
GAR	General Administration Regulations
GSR	General Safety Regulations
HCSR	Hazardous Chemical Substances Regulations
HIRA	Hazard Identification Risk Assessment
H&S	Health and Safety
ER	Engineer's Representative
LI	Labour Intensive
OH	Occupational Health
OHS	Occupational Health and Safety
OHSA	Occupational Health and Safety Act No. 85 of 1993 (as amended)
OHSS	Occupational Health and Safety Specification
PA	Principal Agent
PSHSS	Project Specific Health and Safety Specification
PC	Principal Contractor
PPE	Personal Protective Equipment
SANS	South African National Standards (Authority)
SDS	Safety Data Sheet
SMME	Small, Micro, Medium Enterprise
SWP	Safe Work Procedure
PA	Principal Agent
PSP	Professional Service Provider
POPI Act	The Protection of Personal Information Act

DEFINITIONS

The definitions used will be those set out in the Regulation Gazette No 84 of 2014 7 February 2014 with the following additions:

Client: Eastern Cape Department of Health

Construction Health and Safety Agent:
A competent person appointed by the Client to carry out the duties of the Client in respect of Occupational Health and Safety on the Project in terms of Regulation 5 sub regs (5) and / or (6)

Designer: Means a competent person appointed by the Client as Agent to design, supervise and monitor construction on their behalf.

Hazard: Source of exposure to danger

Hazard Identification and Risk Assessment (HIRA) and Risk Control:
Means a documented plan, which identifies hazards, assesses the risks and details the control measures and safe working procedures which are to be used to mitigate and control the occurrence of hazards and risks during construction or operation phases.

Health and Safety Agent:
Means any person who acts as a representative for the Client in managing the overall health and safety work as their responsible person.

Health and Safety Plan:
Means a documented plan which answers to the Site-specific Health and Safety Specification; including all the supporting documentation that indicate how the Principal Contractor or Contractor plans to manage H&S for the duration of the Contract.

Induction Training:
Means once off introductory training on general health and safety issues given to all employees and visitors to the site before commencement of work on site.

Principal Agent:
Means a competent person appointed by the Client to design, supervise and monitor the construction on their behalf.

Risk: Means the probability or likelihood that a hazard can result in injury or damage.

Regulation/s:
Shall mean the relevant regulation/s promulgated in terms of the Occupational Health and Safety Act, No. 85 of 1993.

Site: Means the area in the possession of the Principal Contractor for the construction of the works. Where there is no demarcated boundary it will include all adjacent areas, which are reasonably required for the activities for the Principal Contractor and approved for such use by the Designer.

The Act: Means, unless the context indicates otherwise, the Occupational Health and Safety Act, No. 85 of 1993 and Regulations promulgated thereunder, as amended.

Workplace means any premises or place where a person performs work.

KEY REFERENCES

Occupational Health and Safety Act No. 85 of 1993 and Regulations (as amended)
Compensation for Injury and Occupational Diseases Act No. 100 of 1993 (as amended)
The GCC 3rd Edition 2015
Construction Specifications & Standards 6.0 for Southern Africa. Hans Wegelin 6th Edition 2010
SANS Code 10400
SANS10085
Compensation for Injury and Occupational Diseases Act No. 100 of 1993 (as amended)
Risk Adjusted Strategy Regulation- issued by the Department of Cooperative Governance
Asbestos Regulations 2001 – as amended in 2003.
Asbestos Abate Regulations 2020

SCOPE OF WORKS

DESCRIPTION OF THE WORKS:

The Motherwell Community Health Centre is an existing facility in the heart of Motherwell. It was designed and built in the late 80's and has been serving the ever-growing community of Motherwell ever since. It is a face brick building with concrete tiled roof. The site is well located, directly off the main arterial route leading into Motherwell – on Tynira Street and is easily accessible.

Alterations and Additions will include: New 590m2, Alterations 118m2

- EMS Building alterations 118m2
- EMS Building extension for support facility (ambulance wash and parking) 94m2.
- New gatehouse 46m2.
- New refuse/waste stores 54m2
- New rehabilitation building 396m2

External Works

- Alterations and Additions to Roads and Parking Areas
- New Security Fencing
- Additions to soil drainage
- Additions to water reticulation including new 116KL High Level water tank.
- Additions to stormwater.
- Relocation of Prefab containers on site to allow for additional roads and parking.

Electrical and ICT Installation to additional and refurbishes areas.

- Replacement of existing Distribution Boards MDBs and SDBs;
- Removal and disposal of existing electrical installations
- New LED lighting in rooms to be refurbished;
- New power points on the walls and ceiling voids in rooms to be refurbished;
- New Electrical works for New Buildings.

HVAC installation

- Installation of Air Conditioning equipment:
    - Split type air conditioning inverter heat pump units,

Fire Protection Installation

- Installation of new hose reel, and extinguisher equipment,
- Installation of new galvanised steel water reticulation,

Domestic Water Installation to new areas

1. PREAMBLE

Each year fatalities, serious injuries and poor attitudes of Contractors mar (spoil) the reputation of the Construction Industry. The Eastern Cape Department of Health has a responsibility to limit its risk by ensuring a zero tolerance and better practice approach to Contractors and those affiliated to a particular project. Thus a high premium is placed on the health and safety (H&S) of Eastern Cape Department of Health stakeholders, which include its employees, patients, professional service providers, public and its physical assets. The responsibilities that the Eastern Cape Department of Health and relevant stakeholders have toward its employees are captured in, but not limited to this document. The responsibilities stem from both moral, civil and a variety of legal obligations. The Principal Contractor is to take due cognisance of the above statement.

Eastern Cape Department of Health, as the Client and where there is an appointed CHS Agent on its behalf, shall provide a project specific Health & Safety Specification (PSHSS) for the project and provide the Principal Contractor/s making a bid or appointed to perform construction work for the project, or parts thereof.

1.1 Purpose of the Project Specific Health and Safety Specification (PSHSS)

The PSHSS is a performance specification to ensure that the Client and any bodies that enter into formal agreements with the Client viz. Agents, Professional Service Consultants (Engineers, Quantity Surveyors and Architects), Principal Contractors and Contractors achieve an acceptable level of OHS performance. No advice, approval of any document required by the PSHSS, such as hazard identification and risk assessments, or any other form of communication from the Client shall be construed as acceptance by the Client of any obligation that absolves the Principal Contractor from achieving the required level of performance and compliance with legal requirements. Furthermore, there is no acceptance of liability by the Client, which may result from the Principal Contractor failing to comply with the PSHSS, i.e. the Principal Contractor remains responsible for achieving the required performance levels.

A Mandatary Agreement in terms of Section 37.2 of the OHSA will be signed between parties prior to any works commencing.

The PSHSS highlights the aspects to be implemented over and above the minimum requirements of current legislation. Requirements may be changed should new risks or issues are identified that could not have been foreseen during the design phase of the project, or during the construction phase. Any new legislation or standards (legislated or determined by Eastern Cape Department of Health that are promulgated or accepted during the contract will automatically be applied.

It should be noted that this OHSS in no way relieves the Contractor of any of his responsibilities set out in the Act and Regulations.

1.2 Implementation of the Project Specific Occupational Health and Safety Specifications (PSHSS)

The project specific H&S specification (PSHSS) forms an integral part of the Contract, and PCs are required to make it an integral part of their Contracts with Contractors and Suppliers. A PSHSS will be available for each level of Contract and Contractor and must be complied with.

This specification must be read in conjunction with the OHSA, Regulations (as amended) and any other standards relating to work being done and ensure compliance thereto.
The information relative to the scope of the project, the works etc. are detailed in the tender, are to be considered when developing the H&S plan and associated documentation. The summary of risks is included in Section 2 of the PSHSS.

The OHSA S.37.2 Mandatory Agreement must be fully completed by the PC, supplied by the Client. These documents shall be deemed to form part of the returnable Contract Documents.

No work may commence without written approval of the H&S plan by the CHS Agent, or the responsible person in Eastern Cape Department of Health as well as the approval of the Construction Work Permit from the Department of Employment and Labour.

Should there be design changes, or change in the scope of works, an amended PSHSS may be issued. Where amended PSHSS are issued, the PC will be required to ensure a resubmission of an amended H&S plan for approval.
Further to this, the PC must ensure that similar information must be provided as it applies to the works to all their Contractors, within 5 working days following notification thereof. Such design changes.

The CHS Agent will visit the project as deemed necessary by the Designer and the CHS Agent to ensure compliance and limit risk. All activities on the site and all appropriate documentation will be monitored and reported on to the Client and the Designer.

Non-conformances will be issued, and penalties or work stoppage will be issued where appropriate. Communication between the CHS Agent and the PC will be through the Designer (PA) (or Client's responsible person) as determined at the commencement of the project.

1.3 Requirements at Tender Stage

Tenderers are required to submit a project specific pre-tender H&S plan with their Tender submission. The documentation submitted will be used to assess the competence of the tenderer, as required in the CRs, therefore the information submitted needs to be complete and as close as possible to the final product.

Adequate pricing for H&S is required, and the appropriate section in the BoQ is to be completed. Failure to do so could result in the Tender being regarded as non-responsive.

The PC shall ensure adequate information is submitted as supporting documentation with his completed Tender. Such information will be assessed against the criteria listed and a score provided to the Bid Award Committee (BAC) for consideration. Failure to provide such information could render the tender application non-responsive.

A project specific H&S Plan in response to this PSHSS will be subject to approval by the CHS Agent. This must include all supporting documentation as required to verify the H&S system:

- A declaration to the effect that the Principal Contractor has the competence and necessary resources to carry out the work safely in compliance with the Occupational Health and Safety Act and its Regulations;
- A valid Letter of Good Standing;
- Detailed technical method statements for approval by the Designer and appropriate risk assessments and safe work procedures for approval by the CHS Agent or Client for all high-risk items.

Further method statements are to be submitted prior to, and during the project where changes or new work is required, and the approval of the Designer/Client is required before work on that aspect or activity can commence.

The CHS Officer is to be included in production planning sessions/meetings to ensure that the appropriate risk assessments, safe work procedures and communication required are available and completed timeously. Penalties will be applied should this not be adhered to and deemed a serious offence.

2. GENERAL REQUIREMENTS

2.1 Summary of Risks identified during Design.

The intention of the summary of findings from the design baseline risk assessment is to highlight the residual risks identified during the design phase. The full design risk assessment can be found in the tender document.
The summary of risks provided is to point the contractor towards some risks he may not be aware of during tendering stage and while developing his formal risk assessments for the project.

The design risks and the management thereof should be included in the Principal Contractors (PC) risk assessments. Where there are other Contractors appointed to do work, the PC is to ensure that Contractors include such information in their risk assessments.

The summary is to be developed following the completion of the Baseline risk assessment, and to include the residual risks as they apply to the project. The items noted are for information only and must be expanded on as required by the project.

- *Weather-Related;*
- *Equipment and Machinery;*
- *Chemical and Environmental;*
- *Traffic and Site Access;*
- *Subsurface Utility Conflicts;*
- *Wildlife and Insects;*
- *Material Handling and Lifting;*
- *Personal Protective Equipment (PPE);*
- *Communication Hazards;*
- *Inadequate Training;*
- *Client and Public Relations;*
- *Infection Prevention Control;*
- *Patient and Visitor Awareness;*
- *Emergency Response Coordination;*
- *Patient Privacy and Confidentiality;*
- *Noise and Disturbance;*
- *Community Health Centre-Specific Protocols;*
- *Emergency Medical Services (EMS) Access;*
- *Communication with Community Health Centre Staff;*
- *Biological Risks;*
- *Risk to the Environment including dust management;*
- *Unknown and existing services;*
- *Electrical Equipment;*
- *High Pressure Equipment;*
- *Working at Heights;*
- *Scaffolding*
- *Excavations*
- *Concrete Work*
- *Hazardous Chemical Substances*
- *Ergonomics*
- *Lifting Equipment*
- *Traffic Accommodation*
- *Demolishing*
- *Waste Management*
- *Asbestos Management*
- *Tree Felling*

3. OCCUPATIONAL HEALTH & SAFETY MANAGEMENT

3.1 Structure and Organization of H&S Responsibilities

3.1.1 Application for a Construction Work Permit

The Client's (ECDOH) appointed Health and Safety Agent must acquire a "Construction Work Permit" from the Department of Labour
.
Work may not commence without the "Application for a Permit to do Construction Work" form being completed by the Client and accepted by the Department of Labour. This includes, inter alia, the Contractor's Health and safety Plan as accepted by the Client.

It should be noted that this OHSS in no way relieves the Contractor of any of his responsibilities set out in the Act and Regulations.
The provincial director at the Department of Labour will issue the permit in writing to perform construction work within 30 days of receiving the construction work permit application and must assign a site-specific number for each construction site.

The contractor must ensure that the site-specific number issued by the Department of Labour must be conspicuously displayed at the main entrance to the site for which that number is assigned.

3.1.2 HEALTH AND SAFETY PLAN FRAMEWORK

The H&S aspects related to the project outlined in the previous sections are to be taken into account when drawing up the H&S Plan. The PC is required to demonstrate competence by providing an H&S system that will address the requirements of the project.

The current legislative requirements, SANS codes, SANS 10400 and any other standards that may guide practice are to be taken into consideration. The following aspects must be addressed in the H&S Plan, as they have been identified in section 2, as playing a role in reducing the overall risk of a particular activity, or section of the project. The CHS Agent may from time-to-time request additions or systems
as they relate to the works or legislative requirements at the time.

The PC is to prepare a site layout drawing to indicate at least the following:

- The positions of site offices of all Contractors, toilets, drinking water and worker rest areas;
- Indicate the positions of emergency personnel and equipment (fire, first aiders, first aid posts);
- Protection of plant and pedestrians, indicate parking, and
- Storage areas (materials and equipment, waste etc.)
- Access and egress to site for deliveries and intended temporary traffic management,
- Emergency assembly point

Such layouts are to be updated regularly throughout the project.

3.2 Appointment of Competent Site Personnel

The CEO (OHSA S16.1) of the PC will take overall responsibility for the appointment of competent site staff for the duration of the project. Should the CEO not be personally involved in the project, the H&S responsibilities are to be delegated to the Site Agent (OHSA 16.2). Knowledge and training in H&S is required, and certificates indicating H&S training as well as experience to be included in CVs.

All other legal appointments are to be made with relevance to the type of work required and kept current with the project programme. The construction team is to ensure the appointed CHS Officer is kept up to date with all planned activities, to ensure all H&S requirements are met.

All construction/technical method statements are to be generated by senior site personnel, and the appropriate risk assessments developed therefrom in conjunction with the CHS Officer.

The Occupational Health and Safety Plan shall include the following, but is not limited to the following key appointments:

3.2.2 Construction Supervision

Competent Full-Time Construction Managers (CR8.1) will be appointed to manage part or all of the work and have training and/or experience in the area of responsibility. All site supervisors must show evidence of appropriate training in H&S, and an understanding or training in areas of responsibility (i.e., risk assessments, method statements etc.).

Multiple competent Assistant Construction Managers (CR8.2) may be appointed where justified by the scope and complexity of the works.

Curriculum Vitae (CVs) are to be submitted for approval by the Designer (PA) and/or Client. The Supervisor will be held responsible for the safety of working teams and subordinates, housekeeping and stacking and storage of materials.

If the Construction Manager (CR8.1) changes throughout the project. The Principal Contractor must ensure to provide the proposed Construction Manager CV and certificates for approval and then update the Annexure 2 and ensure that the appointment letter as well as proof of competency is available in the Health and Safety File.

3.2.3 Construction Health and Safety Officer

The PC will employ at least one competent, full-time CHS Officer (CR8.5) for the duration of the contract. The CHS Officer's CV is to be submitted for approval by the CHS Agent or the Client, at time of tender. The PC is to ensure adequate resources are provided in order to undertake all responsibilities (i.e. mobile phone, computer and internet access, vehicle etc.) Qualifications shall include at least Grade 12, Diploma in H&S qualifications or similar, with exposure to civil engineering and building that is appropriate given the level of project complexity preferably in an OHS capacity. He should also have undergone training in the Act and Regulations. In the case of a contract where contractors are employed, the CHS Officer must have a competence to evaluate the Contractors Health and Safety plans.

Proof of registration as a Construction Health and Safety Officer with SACPCMP must be supplied.

This person may not hold any other position on the site staff.
The site supervisor may not act as the CHS Officer.
The CHS Officer/s will be held responsible for all H&S on the project.

- Senior site staff and supervision, Contractors are to follow systems, instructions etc. given by the CHS Officer at all times;
- No new workers or Contractors may commence work without approval or following the H&S plan as submitted, and
- No inductions of Contractor staff until the H&S documentation is approved by the CHS Officer.
- The CHS Officer/s may not be removed or replaced without the approval of the CHS Agent, nor may the site be left unattended for more than 1 day without adequate, competent cover.

A monthly report of all H&S activities and incidents is required by the end of the first week of each month, or at a date agreed to by the CHS Agent/Client and the CHS Officer. An example of the monthly report is attached as an Annexure C.
The CHS Officer will be responsible for collating the H&S documentation at the close-out of the project in electronic format. The PC is to ensure that all Contractors documentation follows the same requirements and closed out H&S documentation must be completed and be available with the close out of the main contract.

If the CHSO is replaced the principal contractor is required to submit the following documentation for approval by the Client or appointed Pr.CHSA at least two weeks before as The Department of Employment and Labour will need to be notified regarding the changes:

1. Applicant CV
2. Applicant Competency
3. Valid SACPCMP Letter of Good standing

Failure to do so will be considered a serious offence and penalties /stoppage of site will apply.

3.3 Health and Safety Representatives and H&S meetings

H&S Representatives representing workers and Contractors are to be appointed following the startup of the project, irrespective of the number of workers on site. The appointed H&S Representatives are to be actively involved with H&S and will assist the CHS Officer and site management in meeting legislative duties.

The CHS Officer shall further ensure that H&S is discussed at all internal production or progress meetings. Issues arising from the CHS Agent audits are to be discussed, as well as all H&S related issues.

Minutes are to be kept for all H&S interventions and meetings.

Failure to do so will be deemed to be a moderate offence.

3.4 Appointment of Competent Contractors

The Principal Contractor is to ensure compliance with the Client's minimum standards and all legislative requirements. The same H&S standards required of the PC are to be applied to all Contractors. An index of all Contractors and Suppliers is to be on file and kept updated at all times. The PC is to ensure there is sufficient funding for H&S compliance by each Contractor.

The following minimum aspects are applicable to any Contractor appointed:

- The CHS Officer is to ensure a contractor's appointment and approval of H&S documentation at least seven (7) working days prior to commencing work.
- The contractor should take note of the required workload of the appointed CHSO in relation to the appointed SMME's.
- No Contractor may work under the PC's Compensation registration number. If required, the PC may assist SMMEs with their registration with the Compensation Commissioner. However, such Contractors will not be able to commence work until proof of registration or Letter of Good Standing has been received.
- No work may commence without Mandatary agreements between parties in place.

The following aspects are applicable to Suppliers or short-term works (surveying, repairs, servicing, deliveries etc). Cognisance is to be taken of the level of risk involved and the CHS Officer is to ensure the level of H&S documentation is appropriate:

- Signed Mandatary agreements in place.

- Valid Letter of Good Standing
- Method statements and risk assessments

- Available information relative to:
    - Load testing and registers for cranes or lifting devices.
    - Medical certificates of fitness
    - Safety data sheets (SDSs)

Failure to provide written approval of H&S documentation will be considered a serious offense, and could result in aspects of, or all the activities being stopped, and penalties implemented.

4 GENERAL RISK MANAGEMENT

4.1 Health Risks and Medical Surveillance

As some products use in the building work have not been identified, the PC is to ensure the CHS Officer and all supervision is responsible for ensuring the safe use of such products, and their inclusion into method statements and risk assessment. The appropriate SDSs are to be obtained for all products and used to develop the H&S documentation as they relate to the works.

Many of the processes may be labour intensive and ergonomic risks are to be noted. All workers (including Contractors) are to be included in the medical surveillance programme.

Workers will be exposed to biological risk, noise, dust, and physical risks from extended periods of work of a repetitive nature, materials specified and the general nature of the business.

Environmental monitoring results and risk assessments are to be made available to the occupational health professionals doing the medical surveillance. The use of occupational risk exposure profiling (OREPS) and job descriptions are to be used to determine specific exposures for management.

All permanent workers (including those of Contractors) are required to be in possession of a medical certificate of fitness issued by an Occupational Medical Practitioner prior to commencing work. Medical surveillance will commence at pre-employment. All workers (including Contractors) are required to be in possession of a medical certificate of fitness prior to commencing work. Annual medical surveillance is required (unless identified as being required more frequently), Arrangements for keeping medical records for the required time are to be noted. It is recommended that the PC has a medical surveillance plan. Full medical records are not to be placed in the H&S file. A procedure for managing the medical records which require safekeeping for prescribed periods are to be addressed. It should be noted that the time period for keeping medical records where asbestos is present is a period of 40 years. Given the potential health risks the following aspects are to be included in each medical surveillance intervention:

- Full medical, surgical and occupational history;
- Full physical examination of all systems; and
- Referral if required for the management of identified health issues that may affect the worker.

Specific testing for existing conditions and limitations relative to exposure could include, but are not limited to:

- Audiometry (hearing tests); and
- Any other tests identified as relevant from chemical or specifically identified risks of exposure.

No employee/ contract worker will be allowed on site without a valid medical certificate of fitness. Failure to do so will be considered a serious offence.

5.1.1 General Environmental Conditions

Compliance with the Environmental Regulations (as amended), among others is required. Environmental monitoring of ventilation, lighting and dusts may be deemed to be required by the Approved Inspection Authority used to measure the environment. Copies of the relevant reports and actions taken in respect of these are to be placed in the H&S file.

5.1.2 Noise and Dust Control and Risk

All plant from plant hire companies (suppliers) or that of the PC is to be compliant with the Noise Induced Hearing Loss Regulations. Plant identified that has not been tested and marked for noise emissions will result in having to be tested at the Contractors or PCs expense. Failure to do so within a reasonable time period will result in such plant being removed from site.

Audiometric testing of all workers is noted as required in the medical surveillance programme for all permanent workers prior to work commencing. Temporary labour working in identified noise areas will require testing if the noise levels are indicated on plant or through processes as greater than 85dB. Audiometry records are to be available in the H&S file.
Suitable SANS approved hearing protective equipment shall be issued and worn. Where several items of construction plant are in operation at or near to each other, the noise zone for the combined plant should be established and suitable hearing protective equipment used within this zone.

The PC must ensure to take note that the facility will be fully operational and take extra care and planning communicated to the Community Health Centre staff to ensure that noise and dust does not interfere with daily activities.

5.2 Emergency Procedures

An emergency plan and procedure that is appropriate to the risks is required prior to commencement on site. It is advised that the system should be simple and easy for any worker to follow. The plan may be adapted should new information or risks are identified.

The contractor will take into consideration the existing emergency plan and procedures of the existing facility. It must be noted that the Community Health Centre Facility will be fully operational during construction works.

The procedure shall detail the response plan in relation to the works, and include at least (but are not limited to) the following key elements:

- Appointment of a competent emergency response co-ordinator
  - Fire;
  - Public injury, Motor vehicle accidents;
  - Falls from heights;
  - Serious injury to workers (medical or work-related); and
  - Any other major risks identified during risk assessments.

Drills to be conducted bi-monthly for the below:

- Fire drill.
- Bomb threat.
- Fall from Heights Rescue procedures.

The emergency plan is to ensure the inclusion of local service providers where possible. Such arrangements should be made with these persons prior to the commencement of the project.
Local emergency telephone numbers must be displayed and made part of the emergency procedure.

- First aid
  Extra gloves
  Evacuation plans

The general principals of emergency management are to be applied as it applies to the hierarchy of control and management.

5.2.1 First Aiders and First Aid Equipment

At least 2 first aiders will be trained to Level 3. First aiders shall be available and accessible on site at all times and be able to work as a team when responding to any emergency on the project.

Contractors are expected to ensure compliance and provide/manage their own first aiders and equipment. The number of First aiders will be determined by the complexity and exposed risks of the project, not numbers of workers.

Appropriately stocked first aid kits, as per the GAR requirements, are to be available at all times to assure continual availability and access on site.

First aiders shall be available and accessible on site at all times and be able to work as a team when responding to any emergency on the project. The contractor is to ensure that the first aider forms part of the rescue planning emergency situations when working at heights.

5.2.2 Fires and Emergency Management

Attention to emergency planning and procedures is very important. The full emergency plan must form part of the supporting documentation with the H&S Plan. The CHS Agents approval of all emergency plans and procedures is required prior to commencement on site. It is advised that the system should be simple and easy for any worker to follow. The plan may be adapted should new information or risks are identified.

First aiders shall be available in each working team and be able to work as a team when responding to any emergency on the project.

The procedure shall detail the response plan in relation to the works, and include at least (but are not limited to) the following key elements:
Appointment of a competent emergency response co-ordinator and wardens;

- Lists of first aiders, and
- Requirement in terms of identified risks:
  - Fire;
  - Explosions;
  - Falls from heights, and
  - Motor vehicle accidents.
  - Biological risks: e.g., disease outbreaks

The emergency plan is to ensure the inclusion of local service providers where possible. Such arrangements should be made with these persons prior to the commencement of the project.
The emergency plan is to include the risk of fire on site and related to any specific activities where gas, welding, cutting etc. occur.

Fire extinguishers will be appropriate for the risk and in sufficient numbers to deal with the type of fires that could occur. All mobile plants are to have appropriate, accessible fire extinguishers. Hot work permits are required for any such activities.

5.2.3 Incident Management and Compensation Claims

All incidents and accidents are to be investigated. All serious incidents involving any form of disabling injury or fatality are to be reported to the Designer (PA) /Client /CHS Agent immediately. This shall be confirmed in writing following the incident. Full details are to be included in each site meeting or when the Client visits site. A summary of incidents is to be included in the monthly report.

Any person who contracts an Occupational Disease will need to be reported to the Compensation Commissioner as an occupational disease where their work is to monitor and in contact with others. Such details are provided in the Compensation for Injuries and Diseases Act (COIDA).

Failure to comply with emergency provisions will be considered a serious offence, and the operation or project may be stopped if deemed inadequate for the work at the time of assessment or site inspection.

5.3 Personal Protective Equipment (PPE) and Clothing

The PC is to provide a procedure as an addendum to indicate how PPE is managed within the Company.
The wearing of the identified SANS approved PPE. The PC shall ensure that all workers (Including Contractors) are issued with and shall wear:

- Hard hats;
- Protective footwear;
- Dust Masks
- Hand Gloves
- Overalls that ensure worker visibility.
- Eye protection (if required)
- Hearing protection (when required)
- Reflective jackets (no bibs)
- Harnesses (working on heights)
- Respiratory protection (minimum of FFP2), and
- Any other necessary PPE identified from SDSs and/or risk assessments.

Adequate quantities of PPE shall be available. This shall include the necessary PPE for visitors. The procedures for managing PPE are to be in a formal procedure submitted with the H&S plan for approval.

Any person (including Client, Designers (PA) & PSP'S etc.) found on site without the necessary PPE will be removed from site until the PPE is supplied and worn.

Failure to comply will result in penalties being applied.

5.4 Occupational Health and Safety Signage

On-site H&S signage is required. Signage shall be posted up at fixed or temporary working areas, or other potential risk areas/operations. These signs shall be in accordance with the requirements of the General Safety Regulations or SANS requirements as amended. Signage is to be noted on the site drawings indicating where fixed/temporary signage is required.

It should be noted that the Community Health Centre Facility will be fully operational during construction activities and the contractor to ensure sufficient separation.

Temporary signage is to include (but not be limited to) the following:

- Report to site office/ ‘Warning: Construction Site – Keep out’ or similar;
- Site office
- hard hat area or other PPE requirements noted;
- First aid box positions (including vehicles); and
- Fire extinguishers.
- Assembly Area

Signs shall be posted at areas of work on site indicating that a construction site is being entered and that persons should take note of H&S requirements.
Note should be taken that “omnibus” signs indicating that the entire site requires PPE should not be used. Any areas where PPE is mandatory must be separately signed.

The Principal Contractor must ensure that members of the that need to access the Community Health Centre will not be able to gain access to the construction area. It should be noted that the Community Health Centre will be fully operational, and the construction area should be properly and securely barricaded at all times.

Failure to comply will result in penalties being applied.

5.5 Induction of Employees and Visitors, General H&S Training

A simple, formal induction programme is to be submitted as an addendum for approval with the H&S plan. Inductions must be carried out for all workers and visitors (including Client and PSP’s) to the site.

Pre-task training is required to ensure workers are familiar with the risks and H&S measures of the work or tasks to be done. Such training is to be done at least daily. Records of inductions and pre-task training are to be kept in the H&S file.

Any person found on site without proof of induction in the H&S File will be removed from site until the proof is supplied and, and a penalty issued per non-compliance.

5.6 Management of Plant and Equipment

Close control of plant and equipment is required, including that of Contractors. No Manmade and damaged equipment to be used on site, control of all equipment and plant is required. It should be noted that control measures should be implemented especially between the working areas and should at all times be separated from the existing facilities employees’ persons and vehicles.

Daily monitoring of all plant and equipment is required prior to commencing work. Full lists of hired and own plant are to be available at the CHS Agent’s/Client audit.
All daily inspection records are to be kept in the H&S file. Plant Hire and Haulage Contractors are to comply with the requirements where plant and equipment is brought onto site. Registers are not to be more than 1 week behind.

Only competent, fit plant operators are to be used and in possession of medical certificates of fitness. Any plant or slings used to lift plant or material require annual load testing by an AIA, and all certificates must have the testers LMI/E number. Operators are to be adequately trained and certified to operate mobile cranes or crane trucks. Certificates and registers are to be placed in the H&S file. Movement of plant in closures and in confined working areas is to be closely monitored and managed by the supervisors. The blind spots of plant are to be taken into account and workers and Contractors protected accordingly.

Failure to do so will be considered a serious offence.

5.7 Working at Heights

The appointment Fall protection planner to be approved prior to appointment. A fall protection and rescue plan is to be available and supplied as an addendum to the H&S plan. The Fall protection plan to be submitted for approval prior to working at heights. The fall protection plan must be appropriate for the project. Method statements, appropriate risk assessments, safe work procedures and training are to be available prior to work commencing.

Construction drawings shall be required for all temporary structures as they relate to the project. The drawings shall be accompanied by full calculations, design loads and any relevant test results as required by the SANS code and ensure adequate allowance for the development of appropriate documentation and training. All drawings are to be checked and signed by a competent structural engineer (registered with ECSA).

The focus for working at height shall include fall restraint systems where possible except during assembling or dismantling top components or where it is not deemed safe.
The relevant SANS codes are to be applied as they apply to the works and the project, such as:

- SANS 10085
- SANS 10333 (parts 1-3)

Should part of the works be contracted out, competent Contractors are to be appointed and submit documentation according to the project requirements. The PC is to note if such work is to be contracted to specialists in the H&S Plan. The plan is to be developed and work managed by a competent person for the duration of the project. The following aspects must be included:

- The public or users of buildings are to be protected at all times by way of hoarding, barricading or fencing;
- Notices to be posted;
- Restrictions or stoppage when weather conditions are deemed hazardous;
- Permit system for working at heights;
- Prevention of falling tools or equipment;
- Link to emergency plan regarding rescue.

All workers are to be in possession of valid certificates of fitness that extend for the duration of the works. Note the requirements in the section relating to medical surveillance.

Registers and all relevant documentation are to be placed in the H&S file.

Work will be stopped, and penalties applied to any work at heights that is not compliant.

5.8 Auditing

Frequency of external auditing by the CHS Agent or Client will be conducted every 30 Days to ensure that the contractors conform to the requirements of the Construction Regulations. The site will be inspected, and the documentation audited relative to the activities and H&S plan. The CHS Officer of the PC must accompany the Client, or the CHS Agent, on all audits and inspections.

The PC will ensure that all their Contractors are audited at a frequency determined by the CHS Agent. Audit frequency may be increased if Contractors are not performing adequately. Audit results will be acted upon, and non-conformances and penalties issued where deemed appropriate. The Client, Designer or CHS Agent may act or require further outcomes if non-compliances are noted, or unsafe acts are noted on site.

Internal audits are to include site conditions as well as ensuring H&S files are appropriate, and compliant. Comprehensive audit reports are to be made available, the format of the audit reports are to be acceptable by the CHS Agent.

The PC will be audited using a template as supplied in the tender document. The audit template will be adjusted from time to time relative to the activities on site. A similar process is to be used by the PC when auditing their Contractors on site. Compliance with legislative requirements and the systems provided by the PC to manage the H&S on site will be measured. Full compliance is required. Time limits for corrective actions will be set and must be adhered to.

Failure to address findings or non-conformances will be considered a serious offence.

5.9 Communication on Site

All H&S communication during the project between the CHS Agent and the PC will be done through the PA/Clerk of Works/Client and be in writing, including the issue and responses to non-conformances and H&S audit results.

Failure to address issues timeously will be considered a serious offence.

5.10 Care of Workers on Site: Access/Egress of Site / Welfare Facilities

Access

Contractor to ensure that Access control to be in place, hoardings erected to separate site from public. Extra hoarding to be in place to ensure the public and personnel are kept out of the construction site.
The Community Health Centre Facility will be fully operational, and the contractor must ensure no unauthorised entry by the public, patients as well as employees of the Community Health Centre at any time.

Welfare Facilities

Adequate toilets, clean, safe drinking water and decent shelter must be afforded to workers at all times. Toilets will be within reasonable distance of workers, or placed with each working team in safe, with reasonable privacy. Existing facilities may not be shared with existing users of the facility. No substances containing Formaldehyde may be used in Chemical Toilets.

Ablution facilities are an essential facility that must be available for workers across a site. Facilities are a high-risk area and increased cleaning regimes are required to be introduced. A policy on how this will be done is required, that will cover both portable and permanent facilities. The following are considerations, that include, *inter alia*:

- Portable toilets to be provided at a 1:15 ratio but be sanitized daily as per Occupational Health and Safety Measures in Workplaces or more frequently.
- Where there are more than 15 employees on site, facilities should be provided for different sex e.g., female and make toilets to be provided.
- Cleaners to continually clean and have a formal cleaning regime.
- Hand washing facilities (soap and water, paper towel) to be available where possible, and if not, to provide hand sanitizer.
- Induction training to educate to ensure all users are hand washing correctly.
- Flush toilets preferably 1:15 unless increased cleaning regime present.
- Restrict the number of people using toilet facilities at any one time e.g., use a welfare attendant.
- Wash hands before and after using the facilities.

- Enhance the cleaning regimes for toilet facilities particularly door handles, locks and the toilet flush.
- Portable toilets should be avoided wherever possible, but where in use these should be cleaned and emptied more frequently.
- Provide suitable and sufficient rubbish bins for hand towels with regular removal and disposal that need to be managed as hazardous waste.
- Introduce staggered start and finish times to reduce congestion and contact at all times.
- Consider increasing the number or size of facilities available on site if possible.

5.11 Discipline, Alcohol and Substance Abuse

All employees (management included) are to follow instructions given in the interest of H&S. Disciplinary action is to be imposed on those who do not follow such instructions or company rules or policies. Contractor to always follow Community Health Centre safety rules (Refer to 5.20) not to interfere with Community Health Centre activities.

No person is allowed to work or access site if under the influence of alcohol or other substances that could impact on their own or others safety. The PC is to have a drug and alcohol policy available to manage such instances.

These requirements are applicable to any employee of any organization providing services on site. Penalties may also be applied by the Client, OHS Agent or Engineer.

The contractor will ensure to adhere to the Community Health Centres rules and policies at all times.

5.12 Electrical Equipment

In addition to the requirements of the Electrical Machinery Regulations and the General Machinery Regulations any electrical distribution board used for construction work shall be fitted with suitable earth leakage protection.

Contractor to provide a Certificate of Compliance for all temporal distribution boards.
Leads must be properly and firmly connected. Plugs and sockets shall be in good and safe condition.
All electrical apparatus, other than electrical hand tools, shall have a physical “lock out” system which will prevent any operation other than that authorized by a supervisor. A “lock out” sign shall be displayed when the apparatus is not in use.

Method statements and safe work procedures will be required for all work involving electrical apparatus.

5.13 Asbestos Management

All asbestos work should be done in compliance with the Asbestos Abatement Regulations 2020

Asbestos Removal

Asbestos has been identified at Motherwell CHC which includes the existing security building, toilets, main building and building exterior. A full Asbestos Survey report is available on request but will be issued to the successful bidder.

Any work on Asbestos material including removal must be done by an approved asbestos contractor.

The approved asbestos contractor is required to submit a methodology for removal of asbestos materials (To be approved by Client / Client representative before work commences)

The H&S specification provided by the PC is to include as much information as possible relative to the requirements relating to asbestos.

The contractor will be required to develop an asbestos workplan for approval by the client / client representative as well as approval of all general information required of Contractors.
Contractor to ensure that removal of any asbestos must be documented, and proof kept thereof in the Health and Safety File.

All asbestos containing material removed on site will be disposed of at an accredited disposal site and disposal certificates must be obtained fand kept on file.

Failure to do so will be considered a serious offence.

5.14 Demolition

From the findings of an asbestos building survey conducted at Motherwell CHC, Port Elizabeth, the following may be concluded:

Asbestos containing material including-cement eaves, fascia boards and rainwater goods as well as (ceiling panels at security office (New EMS).) were identified at the premises.

Ensure that all Asbestos containing material are removed by an approved asbestos contractor.

Care is to be taken during demolition of walls; a stability survey should be carried out by a competent person. All rubble to be disposed on a regular basis and at an accredited disposal site.

Demolition plan to be submitted by the Principal Contractor for approval by the client / client representative before any demolition work commences.

Demolition activities to be done during non-peak hours or low-occupancy times schedule to be communicated with the Community Health Centre Facility.

The Contractor must at all times take into account that the Community Health Centre Facility will be fully operational during the emergency repairs. Extra care to be taken at all times.

Failure to do so will be considered a serious offence.

5.15 Barricading and Hoarding

It is the responsibility of the contractor to ensure to price correctly for barricading and hoarding as the construction site (each separate construction area) must be securely barricaded from the Community Health Centre facilities to ensure that no public, Community Health Centre employees or patients can gain any access to the construction areas.

Contractor to ensure that the barricading/ hording is maintained at all times as the Community Health Centre will be fully operational.

DANGER TAPE OR CANDY TAPE IS NOT PERMITTED TO BE USED ON SITE AS A MEANS OF DEMARCATION!

5.16 Traffic Management

The contractor to develop a comprehensive traffic management plan that includes:

A site-specific traffic flow diagram.
Identification of high-risk traffic areas or zones.
Strategies to minimize disruptions to normal Community Health Centre operations.
Measures to control vehicle and pedestrian movement around the work area.
Clear signage and demarcation of safe areas.
Procedures for managing temporary road closures or detours.
Provision for emergency vehicle access.
Plans for managing deliveries and contractor vehicles.

5.17 Temporary Works - Scaffolding, support work, formwork

Temporary works must be properly designed and signed off by a competent person. In these instances a competent person is defined as a Professional Engineer or Professional Technologist (registered with ECSA) who has sufficient experience in the design of the type of temporary work in question to be able to assess the design. The appropriate competent persons are to be appointed to manage and monitor such works to the satisfaction of the Engineer and CHS Agent. Records and registers are to be properly completed and kept in the H&S file. If temporary works are to be erected by a Contractor, this must be notified to the Designer/CHS Agent. All necessary calculations and drawings of temporary works must be kept on site and available to the PA and CHSA.

All scaffolding / temporary works support work must have design drawings that includes load bearing and approved by competent person.

5.18 Biological Hazards

It should be noted that while performing construction work at Motherwell CHC it is possible for construction workers to get into contact with biological risk. Coordination between contractor and Community Health Centre infection control shall be implemented to address any concerns relating to biological hazards. All workers entering the construction site must undergo training on the identification and handling of biological hazards prior to commencing work. Contractors shall apply appropriate health and safety measures including PPE and hygiene protocols as per the regulations for hazardous biological agents.

The baseline site HIRA should continue to acknowledge Viral Hazardous Biological diseases outbreak as a general Hazard. Should there be an outbreak the HBA Regulations will apply, and this may require additional controls like HIRA, method statements that address transmission prevention planning, PPE and signage.

5.19 Excavations

A procedure for managing excavations is to be provided as an addendum to the H&S plan describing how excavations are to be managed specifically excavations deeper than 1.5m.

Excavation method statements are to be approved by the Designer and associated risk assessments are required. Designs by competent persons are required where ground conditions are deemed to require shoring.

A competent person is to be appointed for managing all excavations. A permit system is to be available and used for all excavations. All equipment and ground conditions to be checked daily, and prior to work commencing.

Excavations should preferably not be open beyond what can be closed daily. Where excavations need to remain open, all excavations are to be properly protected. Adequate stakes with 1m high demarcation and berms/spoil are required to be a safe distance from the edge of the angle of repose.

Candy tape may not be used to demarcate excavations. Cognisance is required of the surrounding area and increased levels of protection are required where work is in communities, near schools and clinics.

Work will be stopped, and penalties applied to any work in excavations that is not compliant.

5.20 Safety Rules with respect to work to Health Care Facilities

All persons on the premises shall obey the ECDoH & facilities' Health and Safety rules, procedures and practices.

All work shall be carried out within normal working hours except certain essential works which may need to be carried out after hours or over weekends.

Arrangements for such work to be agreed in advance between the Contractor and the facility.

Emergency / Firefighting equipment belonging to the premises is not to be interfered with.

Emergency Exits and Escape Routes, including Temporary Escapes Routes are not to be obstructed.

No persons shall carry out or initiate an unsafe / unhygienic act or operation whilst on the premises.

Workers are not to interfere with the duties of the Community Health Centre, its staff, patients, or visitors.

The Contractor shall maintain good housekeeping standards in the areas being worked on throughout the duration of the contract.

The health facility reserves the right to search any person entering or leaving the health facility premises.

All workers must wear proper identification labels at all times – The Contractor will be asked to remove persons without identification from the premises.

The Contractor will not be permitted to use any tools or equipment belonging to the health facility.

The Contractor is to ensure that noise is kept to a minimum so as not to unduly interfere with the functioning of the adjacent facilities.

The Contractor is to ensure that dust from the works is properly contained so as not to cause problems with the normal functioning of the Community Health Centre facility activities.

5.21 Tree Felling

A procedure for manging how tree felling will be done on the property especially areas where growth within the existing structure of the building.

Tree felling method statements are to be approved by the Designer and associated risk assessments are required.

Secure barricading required around area where work is being done to prevent access to areas where work is being performed.

A competent person is to be appointed for managing tree felling on the existing facility.

6 HEALTH AND SAFETY FILE

The documentation submitted and approved following the awarding of the contract will be used to form the H&S file. The H&S file is required to be laid out in a logical manner, and documentation filed within the file is to be easily accessible.
The following completed information shall be included (but not be limited to) as part of the index:

- The PSHSS;
- The H&S Plan and the approval by Client;
- The Demolition plan and the approval by Client
- The Traffic Management and Approval by Client
- Appointment by Client;
- Mandatory agreement with Client;
- Construction Work Permit from the Department of Employment and Labour
- A record of all working drawings, calculations and design where applicable.
- Detailed list of Contractors with contact details, appointments, Mandatories etc.,
- H&S specifications issued;
- Record of Competencies (CVs) and appointments;
- Training Records;
- Permits;
- Method statements;
- Risk assessments;
- Safe work procedures;
- Emergency and injury management;
- Safety data sheets
- Medical surveillance records;
- Registers; and
- Records of audits, minutes etc.
- Plant lists
- Temporary electrical installations
- Employee records (who is on site)
- Asbestos Dumping certificates

7 NON-CONFORMANCES

Should, at any time, the works, or part of the works, be stopped due to unsafe acts or non-compliance with the Clients or PCs H&S Plan; neither the PC nor any other Contractor shall have a claim for extension of time or any other compensation.

The following constitute examples of the types of non-conformances that will attract penalties:

Minor: **Penalty: R50/count**	**Medium:** **Penalty: R500/count and a non-conformance**	**Severe** **Penalty: R5000/count, a non-conformance and/or activity stoppage**
Non-use of PPE supplied	Toilets not supplied or regularly serviced; lack of drinking water	Contractors working without Health and Safety Plan approval
Non-completion of registers for plant and equipment on site	Contractors not audited	Workers transported in contravention of the OHS plan or legal requirements
Lack of H&S signage at work areas	Working without training or the appropriate, approved H&S method statements	Invalid Letters of Good Standing
Tools and equipment identified in poor condition during inspections	Legal non-conformances identified during the previous audit and not addressed within the agreed time frame	Non-compliance with traffic accommodation requirements: layout or physical conditions
	No monthly OHS report at site meeting to report on	Any serious breach of legal requirements
	No certificates of fitness for workers as required	
	Working without approved method statements	

7.1 Failure to Comply with Provisions

Failure or refusal on the part of the PC or their Contractors to take the necessary steps to ensure the safety of workers and the general public in accordance with these specifications or as required by statutory authorities or ordered by the engineer, shall be sufficient cause for the engineer to apply penalties as follows:

(i) A penalty as shown in the Table above shall be deducted for each and every occurrence of non-compliance with any of the requirements of the PSHSS.

(ii) In addition, a time-related penalty of R500, 00 per hour over and above the fixed penalty may be deducted for non-compliance to rectify any non-conformance within the allowable time after a site instruction to this effect has been given by the Designer. The site instruction shall state the agreed time, which shall be the time in hours for reinstatement of the defects. Should the Contractor fail to adhere to this instruction, the time-related penalty shall be applied from the time the instruction was given.

ANNEXURE A
CLOSE OUT REQUIREMENTS

The H&S files for the Principal Contractors and all Contractors require closure and handover to the Client at the completion of the project. The following list is an example of what should be included but is not exhaustive. The OHS Agent or the Client may require further information at the time of completion and the Principal Contractor is to ensure that all instructions are met. Documentation would include all records from the start of the project. Daily or monthly plant inspection records are not required unless they are related to an accident. All records to be in electronic format and submitted to the OHS agent for approval in adequately formatted lists and folders. Layout should be logical and in the same order as in the site files.

Health and Safety close out file requirements include:

a) Client H&S Specification
b) Principal Contractor's OHS Plan(s)
c) Principal Contractors Policies
d) Organograms
e) Legal Appointments
f) List of all employees employed on a permanent or contractual basis over the duration of the contract.
g) Construction Work Permit Application with the Department of Employment and Labou
h) Letter of Good Standing
i) Full files for all Contractors as well as their close out reports
    - List of Contractors
    - All employees employed on a permanent or contractual basis over the duration of the contract.
    - Letters of Approval of Contractors
    - Mandatary Agreements
    - Letters of Good Standing
    - Appointments
j) Incident Records
k) Non- Conformance records
l) Agent's Audits
m) Method Statements
n) Risk assessments
o) Safe work procedures
p) Medical surveillance certificates of fitness. Medical records are to be kept according to the OH&S Act as amended.
q) All drawings for temporary structures (suspended beams/scaffolds etc.)
r) All operating manuals for any systems that require on-going maintenance.
s) Copies of test results, policies and procedures for environmental monitoring (silica, noise, dusts etc.)

Defect and Liability Period
The H&S files are to be kept 'live' for the defect and liability period by the Principal Contractor, including those of their Contractors. Any work required during the defect and liability period will require an assessment of the H&S file by the OCHS Agent prior to any work commencing.
A copy drawing records for the as-builts are to be placed on file by the Designers once complete.

ANNEXURE B
NON-CONFORMANCES

HEALTH AND SAFETY SITE INSPECTION **NON-CONFORMANCE NO**		
AGENT:	**PROJECT:**	
Consultant:	**Date and time:**	
Client	**Area:**	
Contractor:		
ASPECTS NOTED:	**COMMENTS:**	**COMPLETION REQUIRED BY (DATE):**
	•	
	•	
	•	
	•	
	•	
PHOTOGRAPHIC EVIDENCE (if available):		
OTHER:		
The following penalties are to be applied:		
Signature of Designer		
Signature of CHS Officer/Site Agent		
Signature: of CHS Agent		

ANNEXURE C

CONTRACTORS MONTHLY HEALTH AND SAFETY REPORT

(To be submitted by the end of the first week of each month and be available with each audit)

CONTRACT NUMBER:		PROJECT NAME:	CONTRACT DETAILS:
1	GENERAL ACTIVITIES FOR THE MONTH (detail each area of work)		
2	NUMBER OF WORKERS (permanent and local, contractors)		
3	TRAINING DONE (supplier, no of people, type)		
4	INCIDENTS / ACCIDENT (list number and details, attach reports)		
6	NON-CONFORMANCES (closed out or active)		
7	CONTRACTORS (list, approval status)		
8	AUDITS COMPLETED (internal and external)		
9	CRITICAL ISSUES		
10	GENERAL		

Health and Safety Officer: _____ **Signature:** _____

Date: _____

Construction Manager: _____ **Signature:** _____

Date: _____

SIGNING OF THE ORIGINAL DOCUMENT

We, the undersigned, accept this document as a stable work product to be placed under formal change control as described by the Procedure for Control of Documented Information.

ORIGINAL	**Prepared by**	**Reviewed by**	**Approved by**
Date: **26/02/2024**	Lumcus Training and Consulting Signature: Pr. CHSA	BNM Architects Signature:	Department of Health Signature:

Published: March 2003

Department of labour

Guide
Asbestos Regulations 2001

Chief Directorate: Occupational Health and Safety

NO: OHC 1

FOREWORD

The purpose of this document is to provide guidance to all persons, employees and the public alike, who are responsible for or concerned with the control and prevention of exposure to asbestos in the working environment.

This guide does not replace the Asbestos Regulations of 2001. It is intended to give practical insight into the application of the Regulations. It should always be read in conjunction with the Asbestos Regulations and the Occupational Health and Safety Act of 1993.

CONTENTS

INTRODUCTION

The inhalation of airborne asbestos fibres can cause serious lung diseases including asbestosis, cancer of the lungs and mesothelioma. These diseases usually become apparent only some years after exposure to asbestos and sometimes not until 40 or more years after the first exposure. **Cigarette smokers who are occupationally exposed to asbestos exhibit a marked increase in the incidence of lung cancer when compared to non-smokers.**

Exposure to asbestos may result from:

- Inhalation
  Asbestos can be breathed in as raw fibre or as dust that contains regulated fibres also known as respirable fibres. Inhalation is the most common source of exposure to asbestos.
- Ingestion
  Asbestos can be swallowed in the dust form if it gets on hands, clothing, a beard or moustache. Asbestos fibres can also be taken into the body if food or beverage is contaminated with asbestos. Smoking contaminated cigarettes is particularly risky, because asbestos particles can be breathed in and swallowed.

The old Asbestos Regulations were repealed and the Asbestos Regulations, 2001 were published on 10 February 2002 in Government Gazette No. 23108 with the aim of protecting employees against the adverse effects of asbestos on human health.

The purpose of these guidance notes is to explain in simple language the provisions of the Asbestos Regulations 2001.

Asbestos is any asbestos mineral or any product containing asbestos.

Throughout this guide, the Act means the Occupational Health and Safety Act of 1993.

NB! A specific guideline relating to "demolition work" as defined in regulation 1 of the Asbestos Regulations 2001 is available from the office of the Chief Inspector.

Regulation 2: Scope of application

These regulations are intended to protect the health of any person who may be exposed to asbestos. (In or outside the workplace).

Regulation 3: Notification of asbestos work

Before starting on asbestos-related work, regardless of the extent of the work, every employer (or self-employed person) must write to the relevant provincial director and explain what kind of work is to be done.

Such work could include manufacturing processes during which asbestos fibres are mixed with other materials and the fabrication, installation or removal of asbestos containing materials.

Regulation 4: Exposure to asbestos

Employers and self-employed persons must not allow anybody to work in or to enter an environment in which they may be exposed to asbestos that will exceed the exposure limit for asbestos. The exposure limit is currently set at 0,2 fibres per milliliter of air averaged over a four-hour working period.

Employers must, by means of applying good occupational hygiene principles, keep the airborne asbestos concentration in the workplace at the lowest possible level, but definitely not in excess of the occupational exposure limit (OEL). Good occupational hygiene principles include the following:

- The design and layout of the workplace, engineering measures to control dust, good housekeeping, and good personal hygiene are the first line of defence;
- Administrative controls,

- Thorough training and supervision of employees; and
- The involvement of all employees in safety and health matters in the workplace.

In cases where the concentration of airborne asbestos fibres cannot be contained at or below the occupational exposure limit, employees must be issued with approved/homologated respiratory protective equipment (minimum P2 or FF2). However, this is the last line of defence and the employer must first be able to prove that there is no other reasonable way to reduce the airborne asbestos to below the OEL

Regulation 5: Information and Training

Education and training of any person who may be exposure to lead is of paramount importance, in order to assist employers and employees in reducing the risk of exposure to asbestos dust.

The employer must ensure that he obtains suitable information and training in order to train employees effectively. Alternatively obtain the services of a person who has the requisite competence.

Competence in relation to these regulations infers that the person has practical experience relating to the correct handling, hygiene and work practices relating to work with asbestos. Additionally the person must have a theoretical knowledge of the toxic effects of asbestos.

Education and training must be planned carefully and presented on commencement of employment, and at least annually thereafter.

It is of the utmost importance that health and safety representatives or committees are thoroughly trained and educated with regards to working with asbestos. This is to ensure that the health and safety representatives or committees are able to make informed decisions relating to their discretionary powers.

It is the duty of employers to ensure that all employees have thorough knowledge of the provisions of the Act and these regulations.

Regulation 6: Duties of persons who may be exposed

Employees or any other person exposed to asbestos has a moral and legal duty to comply with any lawful instruction and procedure (written or oral) given by or on behalf of employers. In addition, employees must comply with the requirements laid down by the Act and other applicable regulations.

Failure to do so could result in an increased risk to his health and safety and that of others and may lead to his prosecution.

These instructions and procedures may differ from one workplace to another because workplaces are not identical.

Regulation 7: Assessment of Potential Exposure

This regulation requires the employer to establish if any person is exposed or is likely to be exposed to asbestos dust at the workplace. Assessment is the first step in the process of collecting information in order to make decisions with regard to the risk to health of workers and measures necessary to control asbestos hazards.

The onus is on the employer (or self-employed person) to ensure that a proper assessment is conducted.

<u>Who should conduct the assessment</u>?

The person conducting the assessment should be conversant with the work environment, the processes relating to the asbestos work to be performed and the risks associated with asbestos exposure.

Assessments must be conducted in consultation with health and safety representatives or committee to ensure that their inputs are taken into considerations and ensure transparency.

This assessment is a complex scientific process and it is recommended that reference such as the SAIOH[1] is consulted.

Re-assessments

The re-assessment is intended to confirm the validity of the previous assessment and ascertain that the control measures have been implemented and are effective.

The re-assessment needs not repeat the previous assessment procedure but would be designed specifically to address a range of concerns outlined in this regulation.

Regulation 8: Air monitoring

The employer must introduce a formal measurement program to establish the airborne concentration of asbestos in a particular work place when there is a possibility that workers could be exposed to airborne asbestos in excess of half the OEL (0.2/2 = 0,1 regulated fibre).

Due to the highly technical nature of the air monitoring programme and the requirement that only specialised appointees may conduct such measurement, these guidelines do not go into specific details. As a general guideline, however:

- The employer must first inform the relevant health and safety representative or health and safety committee of the proposed monitoring and give them a reasonable opportunity to comment;
- The monitoring should be conducted by either an approved asbestos inspection authority[2] (AIA), or a person who is registered with the South African Institute of Occupational Hygienists (SAIOH) and whose ability to do the measurements is verified by the AIA.
- The AIA is accountable for the entire process of monitoring and takes full responsibility for the validity, accuracy and correctness of measurement results.
- The decision regarding the number and duration of samples lies with the AIA. The sampling strategy must, however, be representative of the exposure of all employees. If measurement of a representative employee shows that the exposure is above the OEL, then the exposure of all employees that will have the same exposure must be measured.
- Representative measurements must be done at least every 12 months.

  (See Information Brochure No. 1 for Approved Inspection Authorities for Occupational Hygiene for more information - available from the DOL provincial office)

Regulation 9: Medical Surveillance

The need for medical surveillance and the nature thereof is based on both the risk assessment and air monitoring results.

The employer must ensure that an employee undergoes medical surveillance if:

- They are exposed or likely to be exposed to asbestos dust, which may exceed the OEL for asbestos; or
- The occupational medicine practitioner certifies that the relevant employee should be under medical surveillance.

Medical Surveillance should be conducted by an Occupational Medicine Practitioner (OMP) who taking into account the nature of the work and the risks associated with it, should draft a structured surveillance programme to include:

- Initial health evaluation (to be carried immediately or within 14 days of a person starting employment)
  a) Medical and occupational history evaluation,
  b) Medical examination and test which should include chest X-rays, pulmonary function testing and physical examination and

[1] *SAIOH-means the South African Institute for Occupational Hygiene*

[2] *An approved inspection authority approved to monitor asbestos is also known as an approved asbestos inspection authority. The two terms mean the same thing.*

c) Any other medical examination recommended by the OMP to determine the most appropriate work circumstances for the individual. For example the ability to wear a respirator and conditions that might aggravate a pre-existing medical disorders.

- Subsequent evaluation (be conducted at intervals not exceeding two years or at shorter intervals if specified by the occupational medicine practitioner) in which items (b) or (c) of the initial health evaluation should be repeated.

Employees certified unfit must not be allowed into the workplace where they may be exposed to asbestos dust. Where the health problem is as a result of exposure to asbestos in that workplace, the incident must be investigated and recorded in an Annexure 2 form as required by the General Administrative Regulations.

Regulation 10: Respirator zones

A respirator zone is an area where the concentration of regulated asbestos fibres in the air is, or is likely to be greater than the OEL for asbestos. No persons should be allowed to enter the area without wearing respiratory protective equipment and protective clothing.

Respirator zones must be clearly demarcated and identified to prevent accidental and chance, albeit brief, entry. Even if a person passes through the area or there is little work being conducted in that area, a respirator must be worn.

Floor markings or chevron tape are examples of demarcation where the area is not defined by walls. In addition, all access routes should be demarcated and identified by SABS symbolic warning signs that are clearly visible.

Respirator zones should only be regarded as a temporary control measure. The employer should therefore investigate the use of control measures other than respiratory protective equipment and protective clothing to reduce the airborne asbestos concentrations to below the OEL for asbestos. As a precaution asbestos removal operations should be regarded as respirator zone.

Regulation 11: Control of exposure to asbestos

Where the assessment, air monitoring and medical surveillance identify potential exposure, control measures should be implemented. The hierarchy of control starts with avoiding the use of asbestos, followed by engineering measures to limit the creation of asbestos dust at source (once the dust become airborne it is difficult and expensive to control). Personal protective equipment is used only as a last resort and for emergency purposes.

The control measures should aim at reducing the exposure to far below the OEL as is reasonable practicable. The following measures can be used to control the exposure:

- Using a substitute for asbestos;
- Phasing out of asbestos;
- Limiting the number of employees who will be exposed or may be exposed;
- Limiting the period during which an employee will be exposed or may be exposed;
- Limiting the amount of asbestos fibres which may contaminate the working environment;
- Introducing engineering measures for the control of exposure, including the following:
  a) Process separation, automation or enclosure;
  b) Bonding of asbestos fibres with other material to prevent the release of asbestos fibres;
  c) Installation of local extraction ventilation systems to processes, equipment or tools for the control of emissions of airborne asbestos fibres;
  d) Use of wet methods where appropriate;
  e) Separate workplaces for carrying out different processes; and
  f) An indicator to enable early corrective action to be taken.
- Introducing appropriate work procedures which an employee must follow where asbestos materials are used, processed, handled or stored which could give rise to the exposure of an employee, and those procedures shall include written instructions to ensure that:
  g) Asbestos is safely handled, used and disposed of;

h) Process machinery, installations, equipment, tools and local extraction and general ventilation systems are safely used and maintained; and
i) Early corrective action regarding the control of asbestos exposure can be taken.

Regulation 12: Cleanliness of premises and plant

Asbestos dust is practically indestructible. It can be easily disturbed and become airborne. Therefore it is important to remove it from the work environment in order to prevent its continuous re-circulation.

Accidental spillage can lead to an increased concentration of asbestos dust. In such a case, corrective steps must be taken immediately so that employees may proceed with their work.

Cleaning must be done in such a manner that asbestos dust cannot escape or be released into the atmosphere.

Vacuum cleaning equipment should preferably be used (Domestic vacuum cleaners are not suitable and should never be used for this purpose). The equipment should have a filtering efficiency of at least 99% for dust particles of 1 µm in size. A certificate to this effect may be obtained from the supplier.

Where the floor surface is smooth and free of cracks and joints, wet sweeping may be used. Dust should be sprinkled with water or wet sawdust before being collected and picked up. In such a case, the employees concerned must be provided with suitable protective clothing and respiratory protective equipment. Dry sweeping and use of compressed air is strictly prohibited.

In the case of walls, light fittings, equipment and other structures, wet rags may be used. The sawdust and used rags should be treated or disposed as asbestos waste. Care should be taken to avoid electrocution during wet cleaning.

Good hygiene plays an important role in the reduction of exposure and the contamination of the environment.

Regulation 13: Control of exposure to asbestos of persons other than employees

People outside of the workplace can be exposed to airborne asbestos as a result of work carried out by the employer or any person working for him.
The employer must therefore take steps to prevent the release of asbestos into the environment. This could include the use of proper filtration systems. Any substance that forms part of the filtration system should be disposed of as asbestos waste.

Asbestos can be carried through the water systems into other areas outside the workplaces where it could accumulate, become dry and become airborne in an uncontrolled manner.

When asbestos is transported care should be taken to ensure that asbestos is not released into the environment. See regulation 19 for further details.

Regulation 14: Asbestos that forms part of the structure of a workplace, building plant or premises.

The employer must take reasonable steps to determine the location of asbestos in the workplace, buildings, plant or premises for the purposes of managing the potential risk associated with such materials.
An inventory of the asbestos must be made, ideally with the help of health and safety representatives, or at least made available to the health and safety representatives for comment. The inventory may be compiled as follows:

No	Area	Types of asbestos	Condition	Approximate quantity	Occupational exposure	Assessed exposure risk	Control procedure in place

The condition of the material and the risk associated with it must be assessed and a management plan developed. Any employee likely to be exposed must be fully informed of the risk, procedures and work practices necessary to prevent exposure.
Where a control procedure for asbestos involves removal this may qualify as demolition, in which case regulation 21 applies (refer to demolition guideline)

Regulation 15: Asbestos cement sheeting and related products

Employers who work with asbestos cement products, especially roof sheets, must take steps to avoid general accidents since asbestos cement sheeting may not withstand the weight of persons and tools.
The employer should develop a safe work procedure to prevent the release of asbestos into the environment. This procedure should include the use of hand or power tools that will not generate unnecessary dust. Operators who cut asbestos-cement products must wear an approved respirator.

Ideally, new asbestos cement products should be painted or otherwise coated to prevent release of fibre and inhibit the growth of lichen or moss. It is not the intention of these regulations to encourage the unnecessary cleaning of existing roofs and structures. Although some people may wish to clean and repaint for aesthetic reason it is not technically necessary in terms of this regulation.

Dry brushing, scraping, sanding and abrasion cleaning techniques are not allowed. Roof cleaning with a high-pressure water jet is allowed but only in conjunction with a profiled hood that prevents the dispersal of contaminated water. Water polluted with asbestos must be filtered and the residue disposed of safely.

Regulation 16: Records

The benefit of keeping records as specified in the regulation are as follows:

- There is a long time period between initial exposure and the development of asbestos related disease
- Protects both employer and employees

Thorough, complete and up to date records should therefore be kept of:

- Medical surveillance for a minimum period of 40 years;
- Maintenance of control measures for a period of 3 years;
- Asbestos inventory for minimum period of 40 years;
- Training given to employee in terms of Asbestos Regulations for as long as the employee remains employed at the workplace in which he or she is being exposed to asbestos dust; and
- Assessments and air monitoring for a period of 40 years.

Records should be made available as follows: To the

- inspectors from the Department of Labour:- All records that an employer is required to keep, excluding personal medical records. Personal medical records may only be made available to the inspector with the written consent of the employee concerned);
- the employee personal occupational health practitioner:- The personal medical records, when called for in writing by the employee concern; and
- health and safety representatives and committees:- Records of assessments, asbestos inventory and air monitoring.

Regulation 17: Personal protective equipment and facilities

Employers must provide effective personal protective equipment and facilities free of charge. The equipment must also be properly selected, maintained, cleaned, undamaged and properly used. Some manufacturers of respirators give specific instructions in this regard.

Personal Protective Clothing

All employees who are exposed to asbestos dust must be provided with protective clothing.

Respiratory Protective Equipment

All employees in respirator zones, and any other employees who by the nature of their work may be exposed to greater than the OEL for asbestos, must be provided with respirators.

Only respirators that have been approved/homologated by the South African Bureau of Standard (SABS) may be used. When selecting a respirator, the following must be kept in mind:

- The concentration of asbestos fibre;
- The duration of exposure;
- The exposure limit for the asbestos; and
- The safety factor of the respirator.

Respirators can spread contagious diseases. It is advisable to provide respirators for personal use by specific employees. But, if respirators are used in turn by more than one employee, they must be cleaned and disinfected according to the manufacturer's instructions after every use.

No employee should be allowed to remove personal protective clothing and respirators from workplace. This is to prevent asbestos dust being spread to private households.

Personal protective clothing and respiratory protective equipment may only be removed from the premises for repair or washing under controlled conditions. The employer or self-employed person has a responsibility to ensure that when contaminated personal protective equipment is sent off the premises to a contractor for cleaning, that:

- Equipment is packed in impermeable containers;
- The container is tightly sealed;
- The container is clearly marked to indicate that it contains asbestos; and
- The contractor is fully informed of the following:
    a) The requirements of these regulations; and
    b) Precautions to be taken for handling the asbestos contaminated equipment.

This requirement also put the responsibility on the employer to train the contractor on the danger of exposure to asbestos dust.

When the contaminated equipment is removed from the workplace it must not pose a danger to employees or the public.

Cleaning And Storage Of Personal Protective Equipment

All cleaned personal protective equipment must be stored in a place or container where it will be safe from asbestos contamination and damage.

Separate storage facilities must be provided for used personal protective equipment and personal property of employees. Typically, such equipment consists of lockers or any similar type of repository.

The wash and change room facilities must consist of at least the following:

- A clean change room

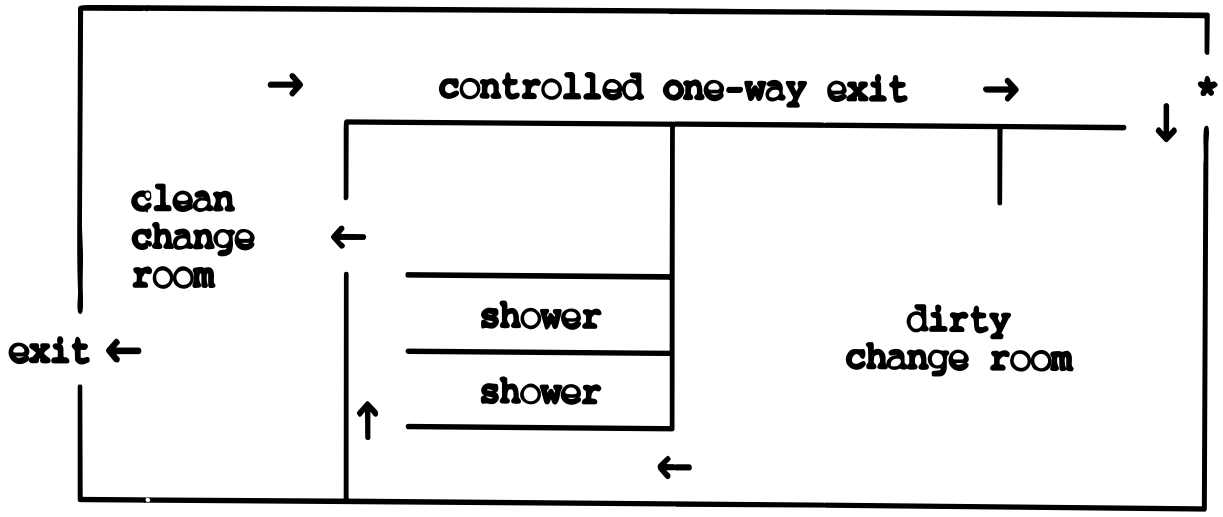
This is a room where employees take off their own clothes and put on clean protective clothing and equipment. In this room, facilities must also be provided for the protection of clean protective equipment as well as private clothes.

- Showers and washing facilities

  No employee may enter a *clean* change room from an asbestos area or respirator zone without showering. The showers should preferably have cold and hot water mixed, in other words, coming out of the same tap, and be activated immediately when a person passes under it. Soap should also be provided for each employee.

- A dirty change room

  All asbestos-contaminated protective clothing and equipment must be removed and left in this room. Facilities for the protection and removal of protective equipment and clothing must also be provided.



* to or from asbestos contaminated area or respirator zone

Regulation 18: Maintenance of control measures

It is essential to ensure that all control equipment and facilities are kept in good order.

Engineering controls should be tested and examined at intervals not exceeding 24 months by an approved inspection authority approved for that purpose.

Regulation 19: Labelling, packaging, transportation and storage

Asbestos can be spread by air, water and human activity. For this reason, all asbestos that has the potential to contaminate, must be:

- Controlled in such a manner that it does not release fibres;
- Kept in containers or a similar suitable manner of containment that makes it difficult to be spread to other areas of the workplace or to other premises; by wind or by water; and
- Contained during transport and clearly labelled (In the form of Annexure 1).

The manner of containment or the kinds of containers to be used will depend on the kind of material being packaged, transported or stored.

Regulation 20: Disposal of Asbestos Waste

Asbestos waste has a potential to pollute the environment and pose a health risk to human health. Therefore, industry must strive to attain maximum reclamation and recycling of asbestos waste. However, asbestos waste must not be used in products that normally do not contain asbestos.

If asbestos waste is not used for reclamation or recycling, the employer must have it dumped safely by ensuring that:

- Asbestos dust is not released during transportation to the dumping ground. Instead, use tightly sealing containers;
- Asbestos waste is dumped on dumping sites specifically approved for asbestos waste in terms of the Environmental Conservation Act, 1989(Act No. 73 of 1989) and the National Environmental Management Act, 1998 (Act No. 107 of 1998);
- All employees who are involved in the transportation and dumping of asbestos waste are provided with the required respirators and protective clothing and they are properly trained in the procedure to be followed in the event of spillage or similar emergency or situation that could arise by accident;
- All equipment is thoroughly cleaned after dumping. This includes vehicles and protective clothing;
- All incidental spillage of asbestos waste be cleaned up immediately. The driver of the vehicle carrying asbestos waste must have the necessary training and be conversant with the instructions to handle such cases; and
- Contractors, and owners of dumping grounds where asbestos waste is disposed, must also comply with the provisions of this regulation. No waste should be left uncovered at the end of a workday.

Regulation 21: Demolition

The regulations thus far dealt with asbestos work under fairly routine circumstances. The regulation entitled demolition deals with work with asbestos under specialized circumstances. The legislator cannot provide for such non-routine situations and therefore the employer must provide his own procedures.

These procedures are submitted in the form of a plan of work to the AIA for approval. The plan of work becomes an independent document and supplements specific requirements of the Asbestos Regulations. These plans of work may adopt different exposure limits, monitoring procedures, methods of control and any other aspect which the AIA decides is appropriate for the carrying out of the particular 'demolition work' that is approved by the AIA. The procedures contained in the plan of work approved by the AIA are legally enforceable.

Please refer to guidance note no: OHC 5 entitled 'Asbestos demolition work'. This guidance note specifically provides details that need to be included in the plan of work.

Regulation 22: Prohibition

This regulation prohibits:

- The use of compressed air to clean the workplace. This method of cleaning creates a danger because asbestos dust becomes airborne and it has the potential to increase the exposure levels and also contaminate other workplaces or environment. Instead, use vacuum-cleaning equipment, or sprinkle the dust with water or wet sawdust before sweeping or removing it.
- Smoking, eating and drinking, and the keeping or foodstuffs or beverages in zoned areas. Because asbestos can enter the body through the digestive tract, this prohibition, as well as any other matters regarding personal hygiene in zoned areas must be given priority.
- Applying asbestos by spraying or similar methods.

5.2. C3.12 BASELINE RISK ASSESSMENT

BASELINE RISK ASSESSMENT

Motherwell Community Health Centre – Phase 1 - Alterations and additions to EMS building, Gatehouse, Refuse and Rehab Buildings

The base line risk assessment is to highlight hazards emanating from project risks identified.

February 2024

Low	Med	High
1	4	12
2	6	18
3	8	27

Risk Rating multiplier: Low = 1; Medium = 2; High = 3

Note, this HIRA is a guide only and does not cover all risks. It must be read in conjunction with the Site Specific OHS Specification in the contract document. The contractor must supply a full risk assessment for all activities on site.

									Residual risk				
	Operation	Hazard	Design Risks identified as present	Likely consequences of an incident	Frequency of Exposure	Probability of harm	Risk rating and risk category	Describe the obvious control measures to be part of design	Likely consequences of an accident	Frequency of Exposure	Probability of harm	Risk rating and risk category	Accountability
1	Weather-Related:	Extreme weather conditions (e.g., thunderstorms, extreme heat, cold, or precipitation).High winds.	Health risks, exposure-related illnesses, or accidents due to adverse weather. Falling from roof/scaffolding during high winds.	1	1	2	2	Monitor weather forecasts and take necessary precautions. Provide suitable clothing and gear for extreme conditions. Have designated shelter areas during storms.	1	1	2	2	Contractor, Construction Manager, CHSO
2	Chemical and Environmental:	Exposure to hazardous chemicals, pollutants, or contaminated soil.	Health risks, chemical exposure, or environmental contamination.	1	1	2	2	Identify and handle hazardous materials safely. Use appropriate personal protective equipment (PPE). Implement proper waste disposal procedures.	1	1	2	2	Contractor, Construction Manager, CHSO
3	Traffic and Site Access:	Traffic hazards when entering the Community Health Centre premises. Disruptions to EMS routes as well as visitors and Community Health Centre staff.	Injury or accidents involving vehicles. Obstruction to Community Health Centre entrance and routes.	2	2	3	12	Establish clear signage and traffic control measures. Use flaggers or barriers to direct traffic away from work areas. Follow established road safety procedures.	1	1	3	3	Contractor, Construction Manager, CHSO

4	Subsurface Utility Conflicts:	Encountering unexpected services.	Damage to existing services.	1	2	3	6	Coordinate with utility companies to identify and mark utilities. Train personnel to recognize utility markings and respond accordingly.	1	1	3	3	Contractor, Construction Manager, CHSO
5	Wildlife and Insects:	Exposure to wildlife or insect bites/stings in outdoor environments.	Allergic reactions, bites, or stings.	1	2	3	6	Provide insect repellent and protective clothing. - Educate Contractors about local wildlife and safe interactions. - Establish protocols for dealing with encounters (e.g., snakes or venomous insects).	1	1	3	3	Contractor, Construction Manager, CHSO
6	Material Handling and Lifting:	Manual handling of heavy equipment or drilling tools.	Musculoskeletal injuries due to improper lifting or handling techniques.	1	2	2	4	Provide training in proper lifting techniques. - Use mechanical aids for lifting when feasible. - Rotate tasks and schedule breaks to prevent overexertion.	1	1	2	2	Contractor, Construction Manager, CHSO
7	Personal Protective Equipment (PPE):	Inadequate or improper use of PPE.	Reduced protection from workplace hazards.	2	2	2	8	Provide appropriate PPE for specific tasks. - Conduct regular PPE inspections and ensure correct usage. - Enforce compliance with PPE requirements.	1	1	2	2	Contractor, Construction Manager, CHSO
8	Communication Hazards:	Lack of communication or unclear instructions during activities.	Misunderstandings leading to accidents or errors.	1	2	2	4	Establish clear communication channels and protocols. - Conduct safety briefings and ensure all team members understand instructions. - Encourage open communication and reporting of safety concerns.	1	1	2	2	Contractor, Construction Manager, CHSO
9	Inadequate Training:	Insufficient training in techniques, safety procedures, or equipment use.	Inefficient work processes, unsafe practices, or accidents.	1	2	2	4	Provide comprehensive training for all Contractors. - Ensure workers are competent to perform their assigned tasks. - Offer ongoing training and updates as needed.	1	1	2	2	Contractor, Construction Manager, CHSO
10	Client and Public Relations:	Managing interactions with clients, property owners, or the public.	Miscommunications, conflicts, or disputes.	1	2	2	4	Establish clear lines of communication with clients and stakeholders. - Address concerns and conflicts promptly and professionally. - Document agreements and communication with clients and stakeholders.	1	1	2	2	Contractor, Construction Manager, CHSO

11	Hazardous Biological Agents	Potential exposure to infectious agents in a Community Health Centre environment.	Transmission of infections to Contractors or Community Health Centre occupants.	2	2	3	12	Adhere to Community Health Centre infection control protocols. Wear appropriate PPE, including gloves and masks when entering Community Health Centre facilities when necessary. Maintain strict hygiene practices, including handwashing and sanitization.	1	1	2	2	Contractor, Construction Manager, CHSO
12	Unknown Existing services:	Overhead or existing services.	Can lead to leaks, fires, explosions, or electric shocks.	1	1	3	3	Safe Work practices.	1	1	2	2	Contractor, Construction Manager, CHSO
13	Dust and Air Quality:	Dust and particulate matter generated by investigation and cleaning.	Air quality degradation and potential respiratory health issues for patients and staff.	1	1	2	2	Implement dust control measures, including water spraying and dust barriers. - Monitor air quality and use air filtration systems where necessary. - Schedule activities that generate dust during low-occupancy times.	1	1	1	1	Contractor, Construction Manager, CHSO
14	Patient safety including staff and Visitors:	Presence of patients, visitors, and staff in the Community Health Centre.	Disturbance to Community Health Centre operations, privacy concerns, or accidents involving Community Health Centre occupants.	2	2	2	8	Clearly communicate the purpose and duration of construction activities to Community Health Centre staff. Implement safety barriers or signage to direct people away from work areas. Minimize disruptions to Community Health Centre operations as much as possible.	1	1	2	2	Contractor, Construction Manager, CHSO
15	Emergency Response Coordination:	The potential for emergencies within the Community Health Centre investigation and cleaning.	Delayed emergency response or confusion during an emergency situation.	2	2	3	12	Coordinate emergency response procedures with Community Health Centre administration. Ensure Contractors are familiar with Community Health Centre evacuation and emergency protocols. Maintain clear communication channels with Community Health Centre security and emergency response teams.	1	1	3	3	Contractor, Construction Manager, CHSO
16	Patient Privacy and Confidentiality:	Investigation and Cleaning contractor having access to patient information or sensitive areas.	Breach of patient privacy or violation of healthcare regulations.	2	2	2	8	Limit access to patient areas to only essential personnel. Ensure all Contractors sign confidentiality agreements. Observe patient privacy rules and POPI Act	1	1	2	2	Contractor, Construction Manager, CHSO
17	Noise and Disturbance:	Noise generated by cleaning and construction activities affecting patient comfort and recovery.	Increased stress levels among patients and staff.	1	2	2	4	Schedule noisy activities during non-peak hours or low-occupancy times. Use noise-reducing equipment or barriers. Communicate with Community Health Centre administration to minimize disruptions.	1	1	2	2	Contractor, Construction Manager, CHSO
18	Community Health Centre-Specific Protocols:	Lack of familiarity with Community Health Centre-specific safety protocols and procedures.	Failure to comply with Community Health Centre rules, leading to incidents or accidents.	1	2	2	4	Collaborate closely with Community Health Centre safety officer/ Facility Manager. Attend Community Health Centre orientation and safety training as required. Adhere to all Community Health Centre-specific safety guidelines and policies.	1	1	2	2	Contractor, Construction Manager, CHSO

19	Emergency Medical Services (EMS) Access:	Potential obstruction of EMS access routes due to construction activities.	Delayed medical response in case of emergencies.	1	2	2	4	Coordinate with CHC administration to identify and maintain clear EMS access routes. Ensure all construction equipment and materials are stored in designated areas that do not block access routes.	1	1	2	2	Contractor, Construction Manager, CHSO
20	Communication with Community Health Centre Staff:	Miscommunication or misunderstanding between Contractors and Community Health Centre staff.	Errors, conflicts, or disruptions in Community Health Centre operations.	1	2	2	4	Establish a clear point of contact within the Community Health Centre for communication and issue resolution. Hold regular meetings with Community Health Centre staff to review progress and address concerns.	1	1	2	2	Contractor, Construction Manager, CHSO
21	Working at Heights:	Scaffolding not properly erected.	Scaffold collapse.	2	3	3	27	To be done by competent persons. Method statements. To be done according to the Design drawings that includes load bearing and approved by competent person. Scaffolding to inspected by a competent person and be certified safe before use.	3	2	2	12	Contractor, Scaffold Erector, Scaffold inspector
		Scaffolding not properly erected.	Fall from height / Falling Object.	2	3	3	27	Scaffolding to be erected and inspected by competent erectors and inspectors. Method statements. To be done according to the Design drawings that includes load bearing and approved by competent person Contractor to price correctly for this section. Fall Protection plan and rescue plan to be done by a registered Fall Protection Planner. Scaffolding to be inspected on a regular basis as per the fall protection plan.	3	2	2	12	Contractor, Scaffold Erector, Scaffold inspector
		Use of ladders.	Persons / objects falling.	2	3	3	18	Worker training. Regular inspection to be done by Competent person. Method statements. Ladder to be according to General Safety Regulations 13a.	2	2	2	8	Contractor, Scaffold Erector, Scaffold inspector
		Use of fall arrest equipment.	Persons / objects falling / injury / death.	2	3	3	18	Ensure workers are trained and competent. Anchorage point and secure anchor or lifeline (to be discussed and approved by the structural engineer prior to work commencing). Fall Protection and Rescue plan to be developed by Fall Protection Planner. Inspection of equipment. Method statements.	2	2	2	8	Contractor, Fall Protection Planner.

22	Use of electrical equipment:	Contact with electricity.	Electric shock.	3	2	3	12	Ensure all connections are secure, no breaks in cable. Proper routing of cables on site. Certificate of Compliance for electrical supply.	3	2	1	6	Contractor, Construction Manager, CHSO, Electrical Supervisor
23	Barricading / Hoarding	Construction site - Barricading / Demarcating / Hoarding	Interaction with existing Community Health Centre activities / personal and general public /	3	3	3	27	Extra special care and planning and communication between the contractor and CHC staff where working in close vicinity to patient/staff areas. A solid hoarding structure to be above ceiling height to be considered. The contractor is to ensure to price correctly for barricading and hoarding to ensure sufficient barricading around each construction area.	3	2	2	12	Contractor, Construction Manager, CHSO
24	Demolishing	Breakdown structure	Break wall from top to bottom. Injury to all body parts can occur	3	3	3	27	Regular inspection and evaluation of the working area prior to work. Employees to be trained and regular tool box talks to be conducted.	3	2	2	12	Contractor, Construction Manager, CHSO, Demolition Supervisor
		Dust	Inhaling of dust causing sinus and other respiratory illnesses	3	2	3	18	Correct PPE, Daily checklists and Tool Box Talks must be done. Communication with the Community Health Centre to ensure minimum dust exposure during working hours. Dust control measures to be provided.	3	2	2	12	
		Working Area	Loose bricks laying around, Workers can fall over bricks - Injuries to all body part can occur	3	2	3	18	Ensure competent operators to position machine correctly to ensure maximum usage are any one lift / Method statements/ Risk Assessments/Safe Work Procedures Tool Box Talks	3	2	2	12	
		Noise generated from demolishing and construction activities	Increased stress levels among patients and staff.	1	2	2	4	Schedule demolition activities during non-peak hours or low-occupancy times. Use noise-reducing equipment or barriers. Communicate with Community Health Centre administration to minimize disruptions.	1	1	2	2	
25	Asbestos Management	Asbestos Removal	Potential to pollute the environment and pose a health risk to human health	3	3	3	27	All pieces of broken asbestos containing material e.g. fibre facia boards,ceiling boards, gutters and down pipes safely stored for disposal at an accredited disposal site. Removal of all waste at regular intervals by an accredited asbestos contractor. All work to be done in compliance with the Asbestos Abatement Regulations 2020.	2	2	2	8	Contractor, Construction Manager, CHSO / Accredited Asbestos Removal Company
								All Employees to wear the correct PPE when working in close proximity to areas containing Asbestos.					Contractor, Construction Manager, CHSO
26	Excavations	Plant & Manual	Injury or death to employees, Public and personnel. Damage to the existing fauna and flora.	3	2	3	18	Excavation barricaded/shored as required. Proper supervision. Toolbox talks to workers to ensure understanding of the heritage of the site. All open excavations to be kept safe at all times.	3	2	2	12	Contractor, Construction Manager, CHSO, Excavation Supervisor
27	Tree Felling	Falling Trees/branches / Contact	Injury to persons / damage to property	3	2	3	18	Proper supervision. Toolbox talks to workers. Correct PPE to be worn / Risk Assessment / Safe Work / Daily equipment checks to be done on equipment	3	2	2	12	Contractor, Construction Manager, CHSO,
		Contact with unidentified services	Injury to persons / damage to property	3	2	3	18	Proper supervision. Toolbox talks to workers. Correct PPE to be worn / Risk Assessment / Safe Work Porcedures.	3	2	2	12	Contractor, Construction Manager, CHSO,

RISK ASSESSMENT MATRIX EXPLANATION

Risk rating multiplier	Low =1	Medium =2	High=3
Likely consequences of an accident/incident (what are the potential results)	Minor damage to equipment / first aid treatment /	Possible fractures / lost time injury /compensation payout / equipment in need of repair	Serious injury /occupational disease / fatality, multiple fatalities / loss of equipment
Frequency of Exposure (how often does it happen)	Limited activity, maybe once or twice on a project (e.g. exposure of services)	Occurs fairly often on a project	Occurs on a daily basis, or continually
Probability of harm (liklihood of something going wrong)	Low, due to limited activity, limited people exposed	Moderate risk, happens within the industry, many exposed	Occurs often withn industry, many exposed

low	med	high
1	4	12
2	6	18
3	8	27

The purpose of the Design HIRA is to assess risk relative to the existing design requirements and standards, and attempt to understand the typical behaviours and practices of the Contractor or team doing the work. One should consider the standards used and refer to them, use drawings, read the design reports and have seen the site. The Agent needs to know and be able to assess the total circumstances that the project is going to operate in. The Agent also needs to understand the environment, relative to H&S and also the people, presence of the public, any particular issues that are known or could be problematic during the project. The Agent should consider the remoteness, the challenges of local labour, and specific requirements of the Client such as use of local labour. Knowledge of products specified, use of SDSs or MSDSs to be included, as well as statistical knowledge of incidents, diseases and fatality rates for similar types of work.

Risk rating and risk category
1
2
3
4
6
8
12
18

27

LEGEND

CR	Construction Regulations
CHSO	Construction Health and Safety Officer
GSR	General Safety Regulations
N-IH l Regs	Noise Induced Hearing Loss Regulations
HBA Regulations	Hazardous Biological Regulations
HIRA	Hazard Identification and Risk Assessment
Db	Decibels
H&S	Health and Safety
PPE	Personal Protective Equipment
PA	Principal Agent
PSHSS	Project Specific Health and Safety Specification
POPI Act	The Protection of Personal Information Act
AIA	Approved Inspection Authority

5.3. PART C4 SITE INFORMATION

C4.1 SITE INFORMATION

Bid Description:	**Motherwell CHC – Phase 1: Alterations and Additions to EMS, Gatehouse, Refuse and Rehab Buildings & External Works (Gqeberha, Nelson Mandela Bay Health District)**
Project Number:	**SCMU3-23/24-0738-HO**

GENERAL

Prospective bidders to familiarize themselves with the locality, access, any other “restrictions” (Refer to Scope of Works C3)

Motherwell CHC

Address : 81 Tynira Street, Motherwell 4, Gqeberha, 6214
Coordinate : -33°48'42"S 25°35'52"E

GEOTECHNICAL INVESTIGATION REPORT

N/A

EXISTING BUILDINGS

PROPOSED BUILDINGS

MALL SERVICE ROAD

SITE BOUNDARY - 140 525mm - FENCED

BLOCK C- EXISTING HT CHAMBER

BLOCK D- WASTE STORES

BLOCK B- SUPPORT FACILITY
GROUND STOREY - EMS

BLOCK A- SUPPORT FACILITY
GROUND STOREY - SECURITY/GATEHOUSE

SITE BOUNDARY - 100 300mm - FENCED

SITE BOUNDARY - 140 525mm - FENCED

MOTHERWELL CHC - SITE PLAN
SCALE 1:500

general notes

SITE KEY

CAD
X:\BNM_Architect\3001-3500\3201-3300\3237_Kwazakhele\09_CAD

notes
The contractor is to verify all dimensions on site before commencing any part of the work. Errors, discrepancies or omissions are to be reported for clarification.

revisions

date	rev	description
-	-	-

structural engineer
mechanical engineer
electrical engineer

BNM ARCHITECTS PROJECT MANAGERS
Brinkman Nday Mcall (Pty) Ltd reg no. 2020/775519/07
tel +27 41 585 2125
fax +27 41 585 2127
email bnmpe@bnm.co.za
address suite 1 lyndon, 114 park drive, central, pe, 6001
postal address po box 12376, centrahil, port elizabeth, 6006

client
Province of the EASTERN CAPE HEALTH

project number
BNM REF: 3239

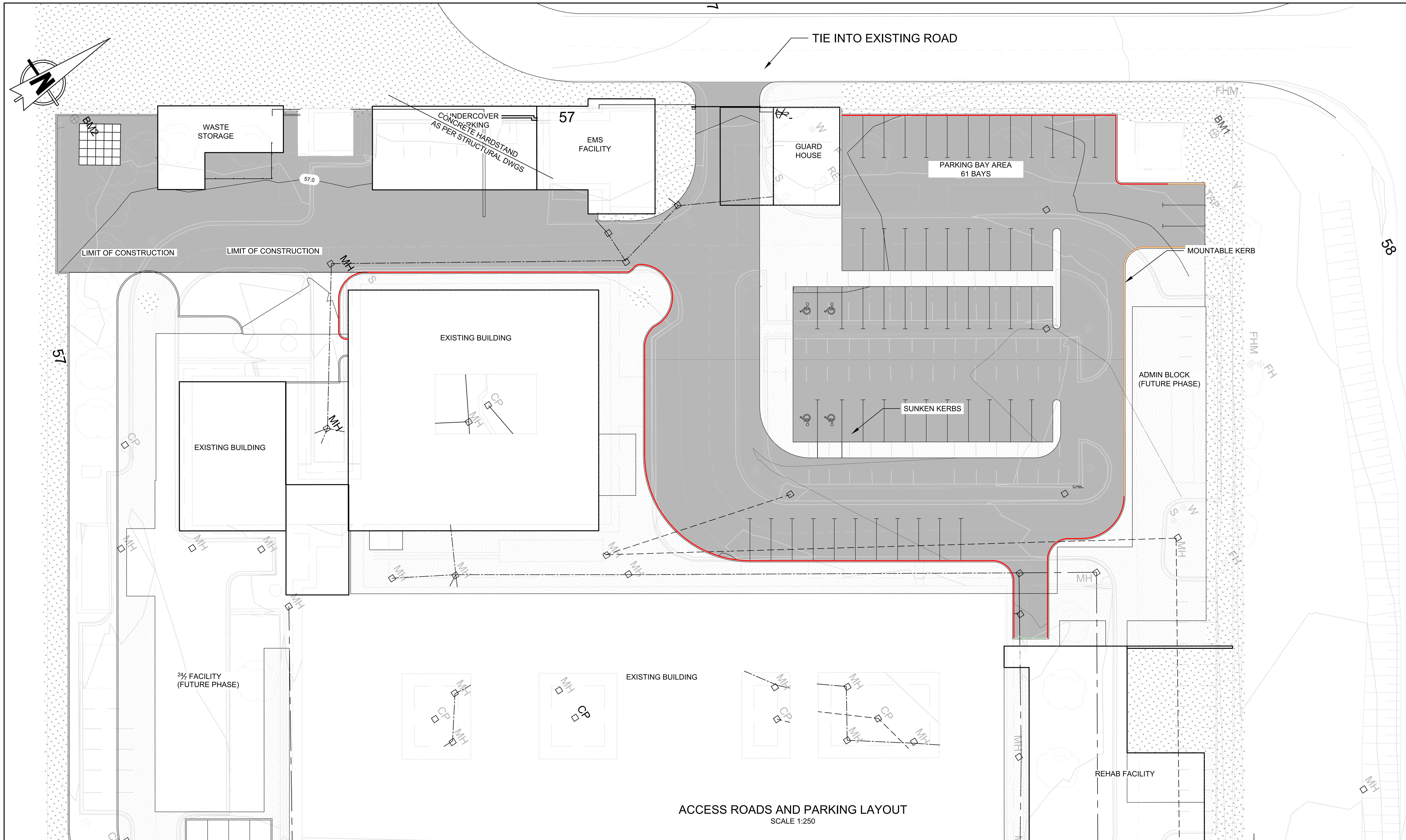
drawing name
MOTHERWELL CHC : SITE PLAN

project details
SCMU3-22/23-0122-HO: MOTHERWELL CHC

drawing number 3237_100_SITE
revision -

drawn	checked	scale	date
WC	A.SWART SACAP 7061 PROF. ARCH.	1:500	13-02-2024

registered owner signature
architects signature



ACCESS ROADS AND PARKING LAYOUT
SCALE 1:250

LEGEND

EXISTING INFRASTRUCTURE:

GENERAL
STORMWATER MANAGEMENT
- STORMWATER PIPE
- STORMWATER SUBSOIL DRAIN PIP
- STORMWATER MANHOLE
- KERB INLET
- GRID INLET

WATER RETICULATION
- BULK WATER PIPE
- DOMESTIC WATER PIPE
- FIRE HYDRANT
- WATER METER

SEWER RETICULATION
- SEWER RETIC PIPE
- SEWER RISING MAIN PIPE
- SEWER MANHOLE

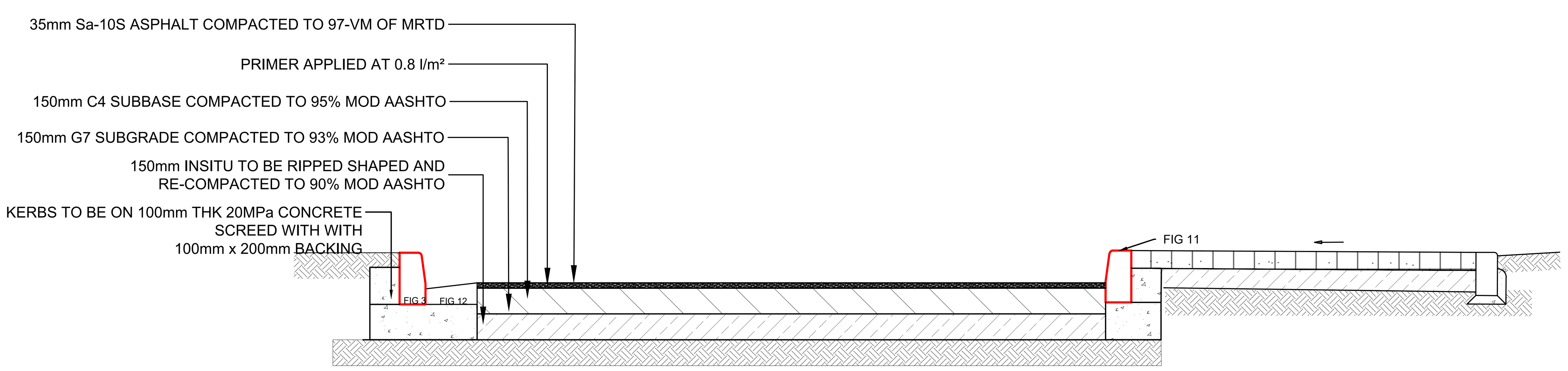
PROPOSED INFRASTRUCTURE:

STORMWATER MANAGEMENT
- STORMWATER PIPE
- STORMWATER MANHOLE
- KERB INLET
- GRID INLET

WATER RETICULATION
- DOMESTIC WATER PIPE
- CONNECTION WATER PIPE
- FIRE WATER PIPE
- FIRE HYDRANT
- ISOLATING VALVE
- WATER METER

SEWER RETICULATION
- SEWER RETIC PIPE
- SEWER MANHOLE

ROADS
- BARRIER KERB
- MOUNTABLE KERB
- SUNKEN KERB KERB
- ROADS ASPHALT SURFACE
- ROADS PAVING
- SIDEWALK PAVING



TYPICAL PARKING AREA CROSS SECTION
SCALE 1:25

FOR INFORMATION

Amendments

Rev	Date	Description	Initials
0	FEB 2024	FOR INFORMATION	E.D.T

Drawing notes
1. POSITIONS OF EXISTING SERVICES ARE APPROXIMATE AND ACTUAL POSITIONS AND LEVELS MUST BE DETERMINED ON SITEBY CONTRACTORS BEFORE WORK COMMENCES.
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17. THE BEDDING TYPE WILL DEPEND ON THE PIPE MATERIAL BEING USED. FOR CONCRETE PIPES, RIGID CLASS B BEDDING TYPE WILL BE USED AND FOR PVC PIPES, FLEXIBLE PIPE BEDDING TYPE WILL BE USED.

Service authority approval

Position	Name	Date	Signature

Client(s)
health — Department: Health — REPUBLIC OF SOUTH AFRICA
Signature ____________ Date ________
Client Drawing No.:
Sht
Of

Project title
MOTHERWELL CHC

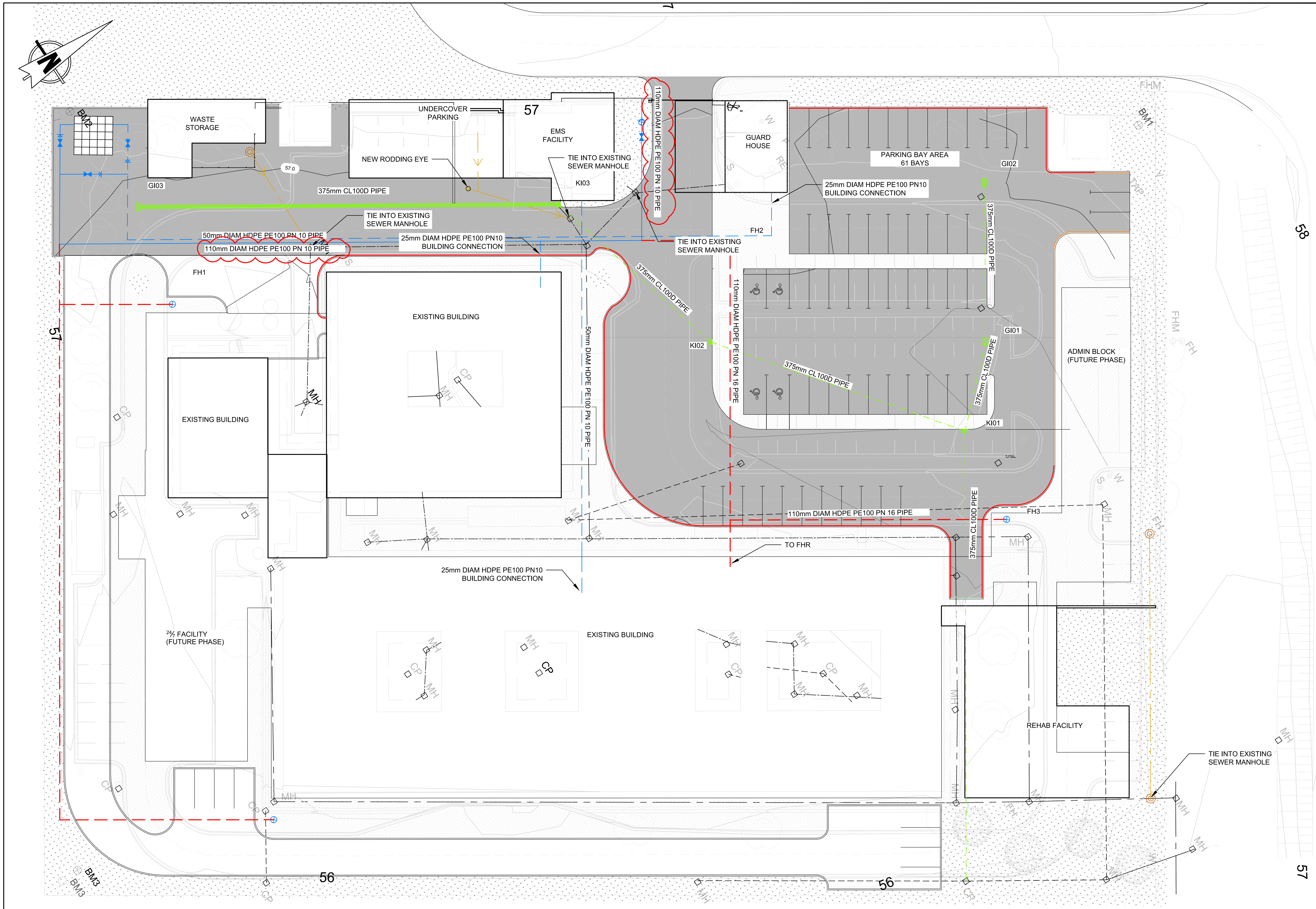
Drawing title
CIVIL SERVICES: ACCESS ROADS AND PARKING LAYOUT

Scale: 1:250 Co-ordinate System:
Paper Size: A1 WGS 84 - LO25

SMEC — Member of the Surbana Jurong Group
Signature ________________ PR ________ Date ________

Process	Name	Date	Signature
Designed	E. DU TOIT		
Checked	D. SHARP		
Verified	J. KAMPMAN		
Drawn	E. DU TOIT		
Checked	J. KAMPMAN		

SMEC Drawing No.: EC0034-MTH-RDS-GA-010
Rev: 00



ALL SERVICES LAYOUT

SCALE 1:250

LEGEND

EXISTING INFRASTRUCTURE:

GENERAL

STORMWATER MANAGEMENT
- STORMWATER PIPE
- STORMWATER SUBSOIL DRAIN PIPE
- STORMWATER MANHOLE
- KERB INLET
- GRID INLET

WATER RETICULATION
- BULK WATER PIPE
- DOMESTIC WATER PIPE
- FIRE HYDRANT
- WATER METER

SEWER RETICULATION
- SEWER RETIC PIPE
- SEWER RISING MAIN PIPE
- SEWER MANHOLE

PROPOSED INFRASTRUCTURE:

STORMWATER MANAGEMENT
- STORMWATER PIPE
- STORMWATER MANHOLE
- KERB INLET
- GRID INLET

WATER RETICULATION
- DOMESTIC WATER PIPE
- CONNECTION WATER PIPE
- FIRE WATER PIPE
- FIRE HYDRANT
- ISOLATING VALVE
- WATER METER

SEWER RETICULATION
- SEWER RETIC PIPE
- SEWER MANHOLE

ROADS
- BARRIER KERB
- MOUNTABLE KERB
- SUNKEN KERB KERB
- ROADS ASPHALT SURFACE
- ROADS PAVING
- SIDEWALK PAVING

FOR INFORMATION

Amendments

Rev.	Date	Description	Initials
0	FEB 2024	FOR INFORMATION	E.D.T
1	FEB 2024	ADJUSTED WATER PIPE Ø SIZES	E.D.T

Drawing notes

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Service authority approval

Position	Name	Date	Signature

Client(s): health — Department: Health — REPUBLIC OF SOUTH AFRICA

Signature ________ Date ______

Client Drawing No.: Sht Of

Project title: MOTHERWELL CHC

Drawing title: CIVIL SERVICES: ALL SERVICES LAYOUT

Scale: 1:250 Co-ordinate System: WGS 84 - LO25

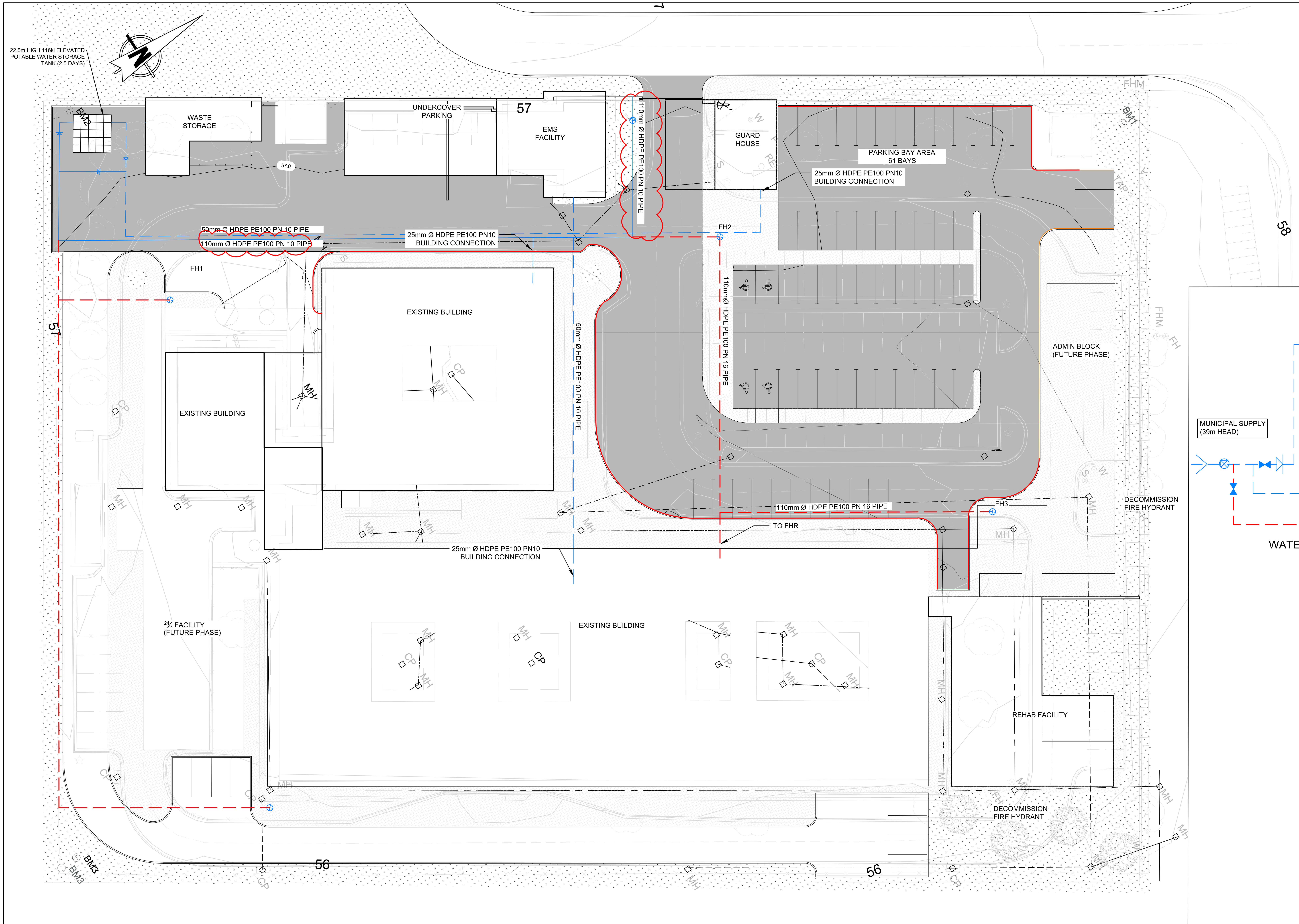
Paper Size: A1

SMEC — Member of the Surbana Jurong Group

Signature ________ PR _______ Date _______

Process	Name	Date	Signature
Designed	E. DU TOIT		
Checked	D. SHARP		
Verified	J. KAMPMAN		
Drawn	E. DU TOIT		
Checked	J. KAMPMAN		

SMEC Drawing No.: EC0034-MTH-GEN-GA-001 Rev 01



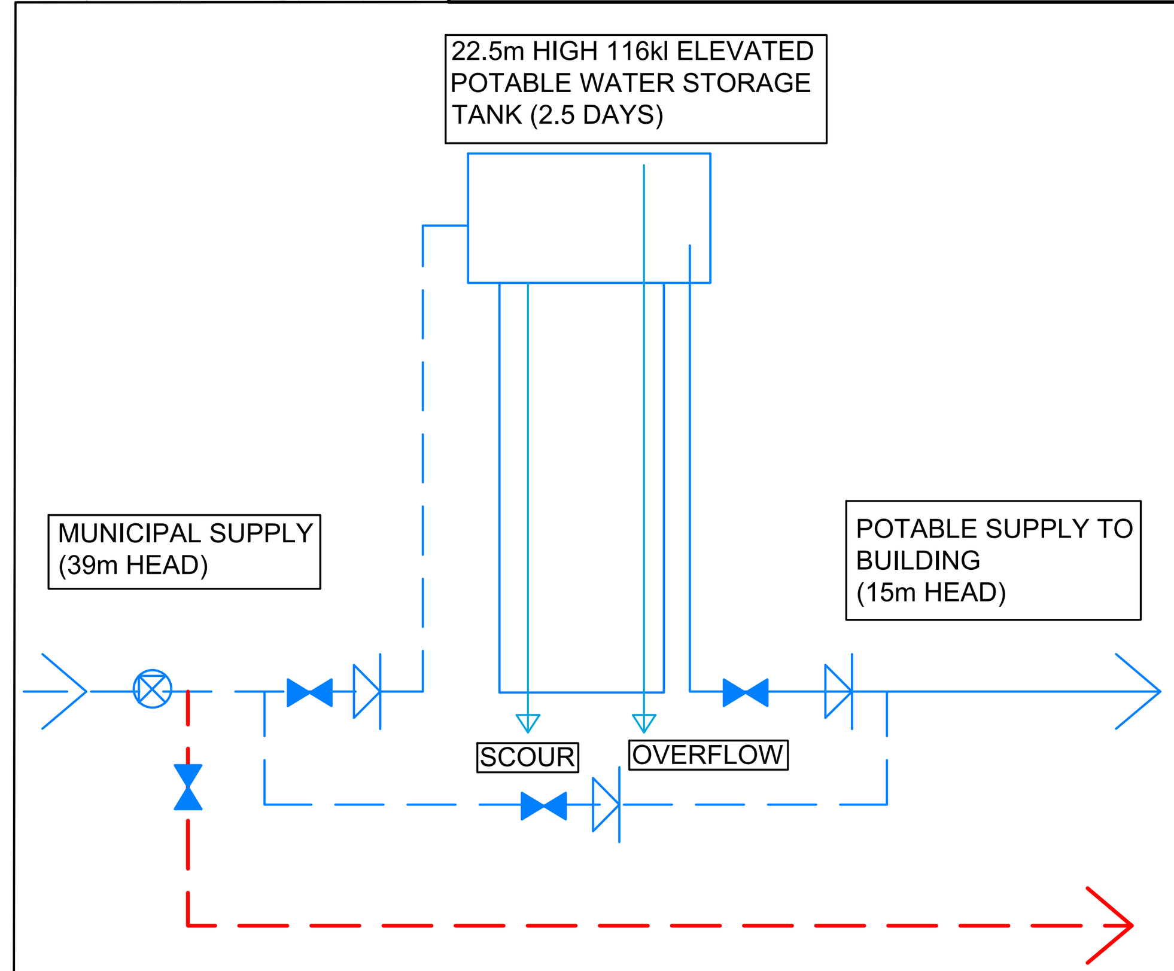
WATER RETICULATION LAYOUT
SCALE 1:250

LEGEND

EXISTING INFRASTRUCTURE:
GENERAL
WATER RETICULATION
- BULK WATER PIPE
- DOMESTIC WATER PIPE
- FIRE HYDRANT
- WATER METER

PROPOSED INFRASTRUCTURE:
WATER RETICULATION
- DOMESTIC WATER PIPE
- CONNECTION WATER PIPE
- FIRE WATER PIPE
- FIRE HYDRANT
- ISOLATING VALVE
- WATER METER

ROADS
- BARRIER KERB
- MOUNTABLE KERB
- SUNKEN KERB KERB



WATER SCHEMATIC LAYOUT
N.T.S

FOR INFORMATION

Amendments

Rev.	Date	Description	Initials
0	FEB 2024	FOR INFORMATION	E.D.T
1	FEB 2024	PIPE Ø INCREASED	E.D.T
			E.D.T

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Service authority approval

Position	Name	Date	Signature

Client(s)
health
Department: Health
REPUBLIC OF SOUTH AFRICA
Signature_______________ Date______
Client Drawing No.:
Sht
Of

Project title
MOTHERWELL CHC

Drawing title
CIVIL SERVICES: WATER RETICULATION LAYOUT

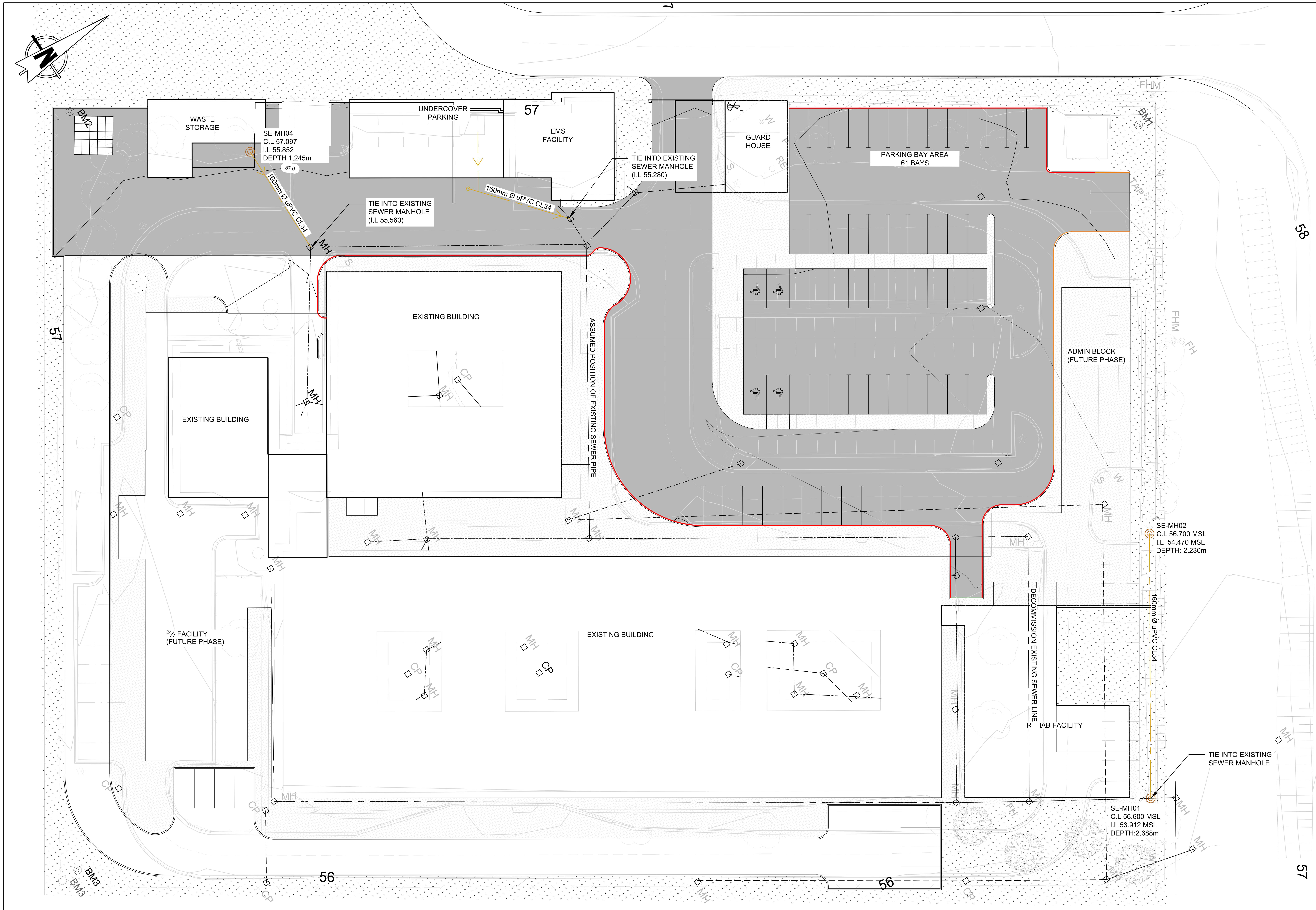
Scale: 1:250 Co-ordinate System: WGS 84 - LO25
Paper Size: A1

SMEC
Member of the Surbana Jurong Group

Signature_________________ PR _______ Date _______

Process	Name	Date	Signature
Designed	E. DU TOIT		
Checked	D. SHARP		
Verified	J. KAMPMAN		
Drawn	E. DU TOIT		
Checked	J. KAMPMAN		

SMEC Drawing No.: EC0034-MTH-WAT-GA-030
Rev 01



LEGEND

EXISTING INFRASTRUCTURE:

GENERAL

SEWER RETICULATION

- SEWER RETIC PIPE
- SEWER RISING MAIN PIPE
- SEWER MANHOLE

PROPOSED INFRASTRUCTURE:

SEWER RETICULATION

- SEWER RETIC PIPE
- SEWER MANHOLE
- SEWER RODDING EYE

ROADS

- BARRIER KERB
- MOUNTABLE KERB
- SUNKEN KERB KERB

SEWER RETICULATION LAYOUT

SCALE 1:250

FOR INFORMATION

Amendments

Rev.	Date	Description	Initials
0	JAN 2024	FOR INFORMATION	E.D.T

Drawing notes

1. POSITIONS OF EXISTING SERVICES ARE APPROXIMATE AND ACTUAL POSITIONS AND LEVELS MUST BE DETERMINED ON SITEBY CONTRACTORS BEFORE WORK COMMENCES.
2. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE SANS 1200 SPECIFICATIONS AND PROJECT SPECIFICATIONS.
3. NO WORK TO COMMENCE OUTSIDE THE CONSTRUCTION LIMITS. ENGINEER MAY INSTRUCT WORK STOPAGE SHOULD ANY ACTIVITY COMMENCE OUTSIDE THE CONSTRUCTION LIMITS.
4. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION.
5. A COMPLETE SET OF DRAWINGS TO BE AVAILABLE ON SITE AT ALL TIMES
6. DIMENSIONS MUST NOT BE SCALED OR ASSUMED, AFTER NOTIFICATION, DISCREPANCIES OR MISSING DIMENSIONS WILL BE CORRECTED IN WRITING BY THE ENGINEER.
7. THE CONTRACTOR SHALL HAVE ALL THE NECESSARY WAYLEAVES IN PLACE PRIOR TO ANY CONSTRUCTION WORK.
8. THE CONTRACTOR TO COMPLETE A DOCUMENTARY EVIDENCE OF ALL THE EXISTING SERVICES SITUATED IN CLOSE PROXIMITY TO THE BULK EARTHWORKS.
9. CONTRACTOR IS TO TAKE COGNISANCE OF SUBSURFACE CONDITIONS AND PLAN ACTIVITIES ACCORDINGLY.
10. ALL LEVELS IN METERS AND REFERS TO M.S.L.
11. CONTRACTOR TO VERIFY ALL LEVELS OF ALL EXISTING PIPES AND MANHOLES AT WHICH CONNECTIONS ARE REQUIRED AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO ANY CONSTRUCTION.
12. TOPSOIL TO BE REMOVED TO A NOMINAL DEPTH OF 150mm, STOCKPILED AND MAINTAINED FOR THE DURATION OF THE WORKS.
13. ALL CUT AND FILL EMBANKMENTS TO BE GRASSED AND PROTECTED WITH SOILSAVER OR SIMILAR EROSION CONTROL BLANKETS AS PER PROJECT SPECIFICATIONS.
14. EXISTING TREES WITHIN THE SITE SHALL BE SURVEYED, CO-ORDINATES OF THE TREE POSITIONS WILL NEED TO BE PROVIDED TO THE ENGINEER, WHO WILL INSTRUCT THE CONTRACTOR TO REMOVE ALL TREES THAT IMPACT THE ENGINEERING WORKS.
15. ALL MANHOLE COVERS TO BE MEDIUM DUTY UNLESS LOCATED IN THE ROADWAY OF WHICH MANHOLE COVER IS TO BE HEAVY DUTY.
16. THE MINIMUM COVER FOR STORMWATER PIPES IS 0.6m
17. THE BEDDING TYPE WILL DEPEND ON THE PIPE MATERIAL BEING USED. FOR CONCRETE PIPES, RIGID CLASS B BEDDING TYPE WILL BE USED AND FOR PVC PIPES, FLEXIBLE PIPE BEDDING TYPE WILL BE USED.

Service authority approval

Position	Name	Date	Signature

Client(s)

health
Department: Health
REPUBLIC OF SOUTH AFRICA

Signature ________ Date ________

Client Drawing No.: Sht Of

Project title

MOTHERWELL CHC

Drawing title

CIVIL SERVICES: SEWER RETICULATION LAYOUT

Scale: 1:250 Co-ordinate System: WGS 84 - LO25

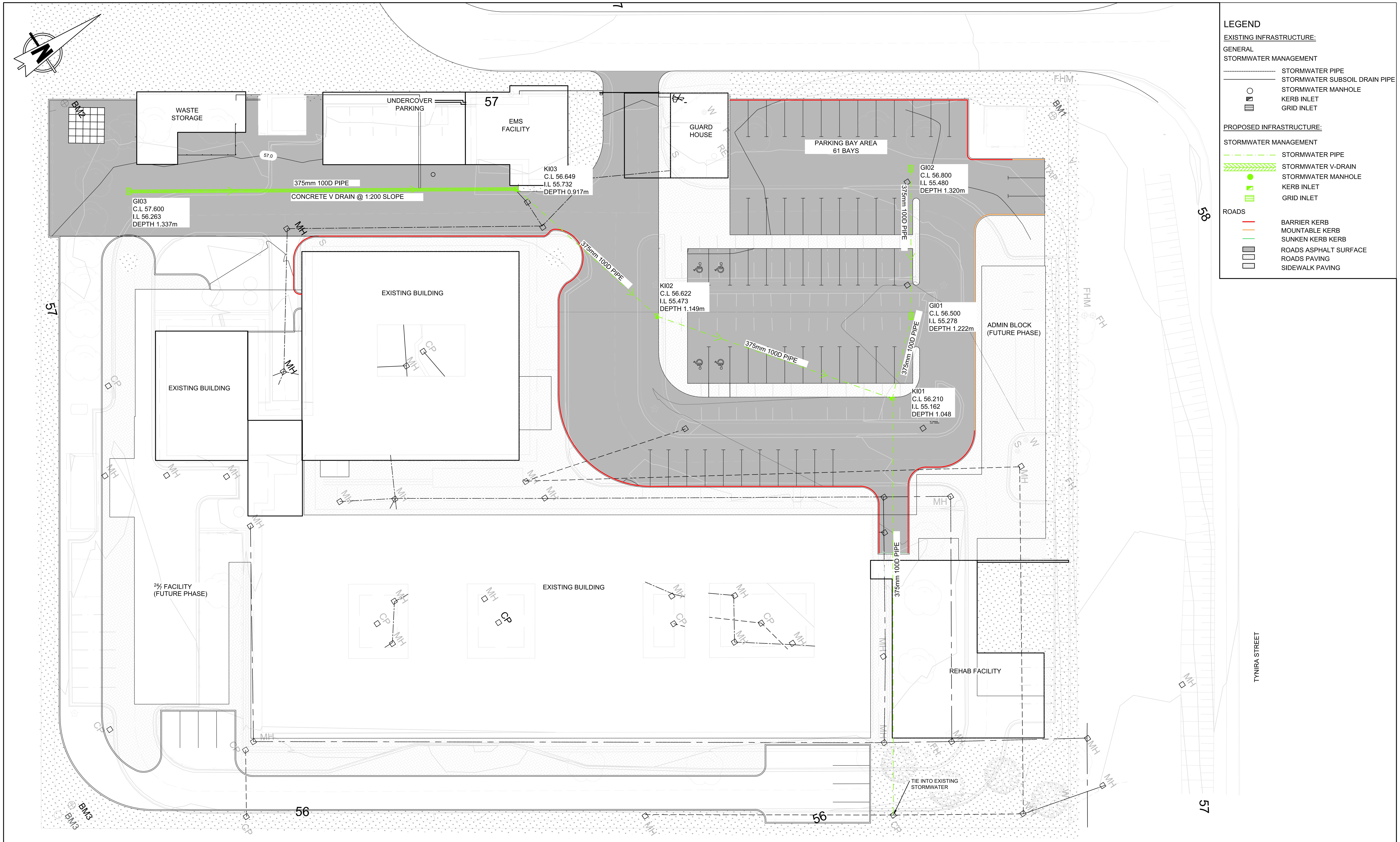
Paper Size: A1

SMEC
Member of the Surbana Jurong Group

Signature ________ PR ________ Date ________

Process	Name	Date	Signature
Designed	E. DU TOIT		
Checked	D. SHARP		
Verified	J. KAMPMAN		
Drawn	E. DU TOIT		
Checked	J. KAMPMAN		

SMEC Drawing No.: EC0034-MTH-SEW-GA-020 Rev 00



STORMWATER MANAGEMENT LAYOUT
SCALE 1:250

FOR INFORMATION

Amendments

Rev.	Date	Description	Initials
0	FEB 2024	FOR INFORMATION	E.D.T

Drawing notes

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Service authority approval

Position	Name	Date	Signature

Client(s)
health — Department: Health, REPUBLIC OF SOUTH AFRICA
Signature______ Date______
Client Drawing No.: Sht Of

Project title
MOTHERWELL CHC

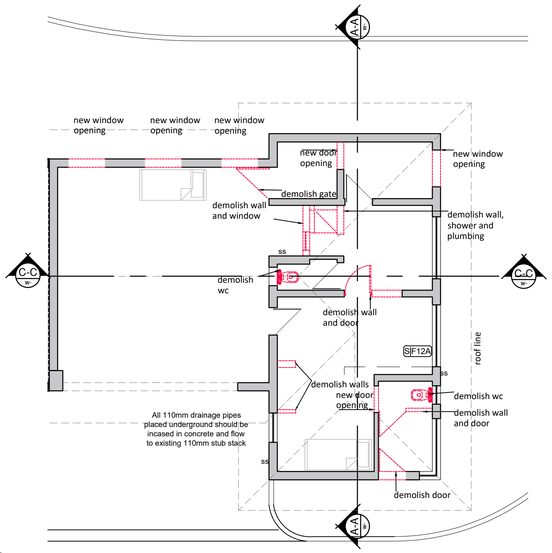
Drawing title
CIVIL SERVICES: STORMWATER MANAGEMENT LAYOUT

Scale: 1:250 Co-ordinate System: WGS 84 - LO25
Paper Size: A1

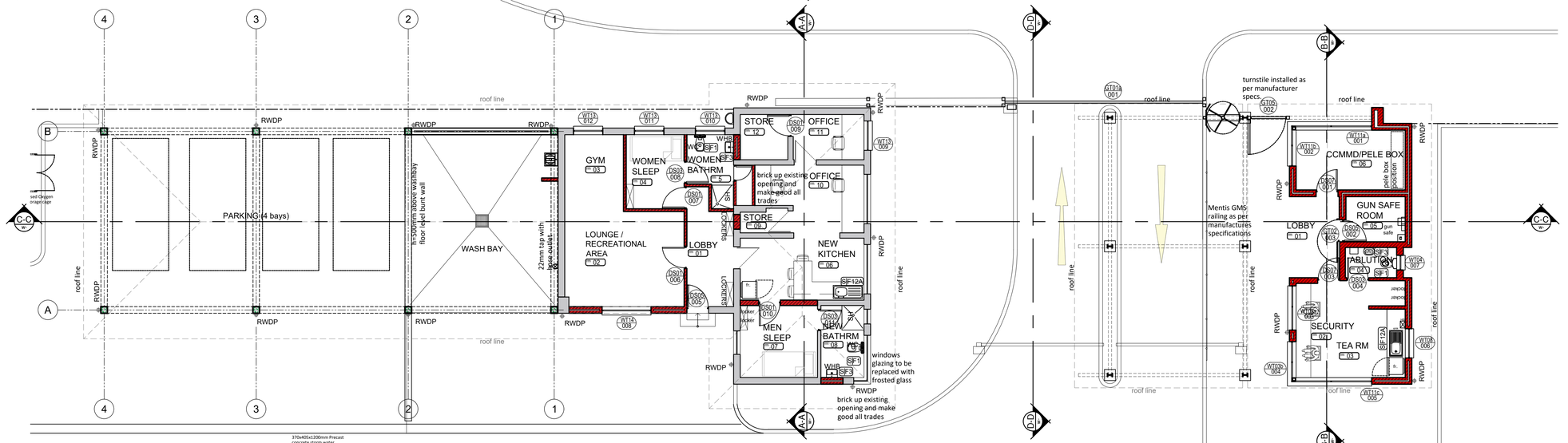
SMEC — Member of the Surbana Jurong Group
Signature______ PR______ Date______

Process	Name	Date	Signature
Designed	E. DU TOIT		
Checked	D. SHARP		
Verified	J. KAMPMAN		
Drawn	E. DU TOIT		
Checked	J. KAMPMAN		

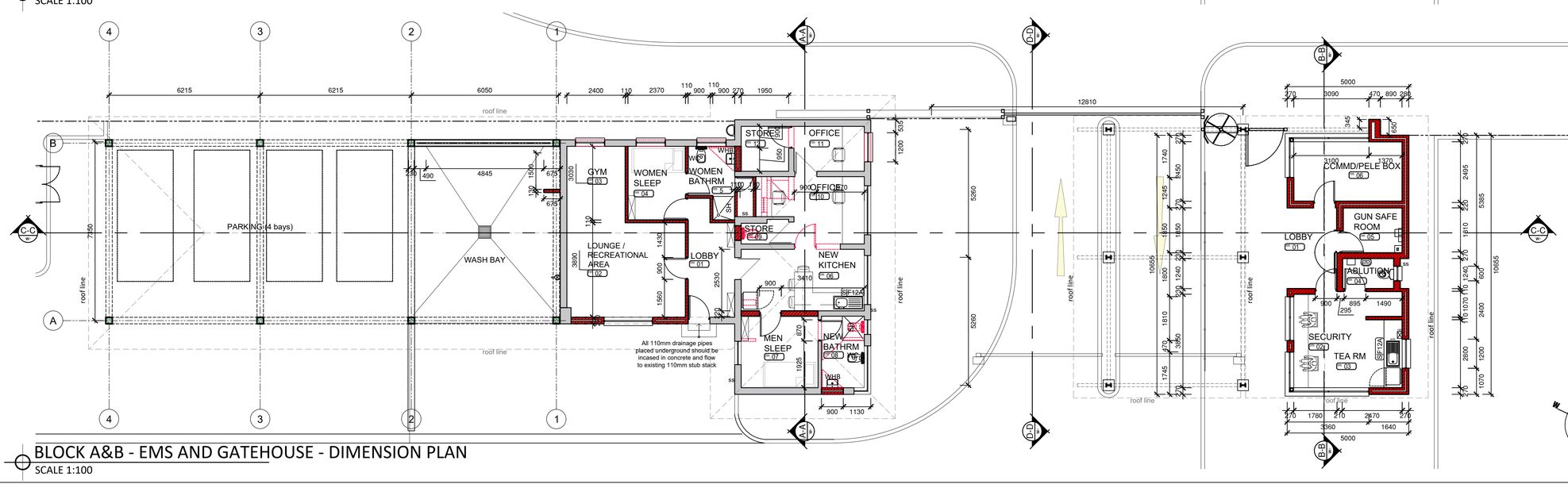
SMEC Drawing No.: EC0034-MTH-STW-GA-015 Rev 00



BLOCK B - EMS - DEMOLITION PLAN
SCALE 1:100



BLOCK A&B - EMS AND GATEHOUSE - KEY PLAN
SCALE 1:100



BLOCK A&B - EMS AND GATEHOUSE - DIMENSION PLAN
SCALE 1:100

general notes

SITE KEY

CAD
X:\BNM_Architect\3001-3500\3201-3300\3239_Motherwell CHC

notes
The contractor is to verify all dimensions on site before commencing any part of the work. Errors, discrepancies or omissions are to be reported for clarification.

revisions

date	rev	description
-	-	-

structural engineer
mechanical engineer
electrical engineer

BNM ARCHITECTS PROJECT MANAGERS
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fax +27 41 585 2127
email bnmpe@bnm.co.za
address suite 1 lyndon, 114 park drive, central, pe, 6001
postal address po box 12376, centrahil, port elizabeth, 6006

client
Province of the EASTERN CAPE HEALTH

project number
BNM REF: 3239

drawing name
BLOCK A & B
PROPOSAL PLANS

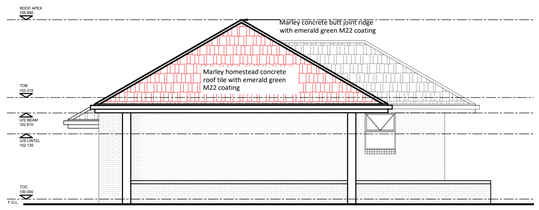
project details
SCMU3-22/23-0122-HO:
MOTHERWELL CHC

drawing number
3239_D_201

revision

drawn	checked	scale	date
M.S	A.SWART SACAP 7061 PROF. ARCH.	1:100	08-11-2023

registered owner signature
architects signature



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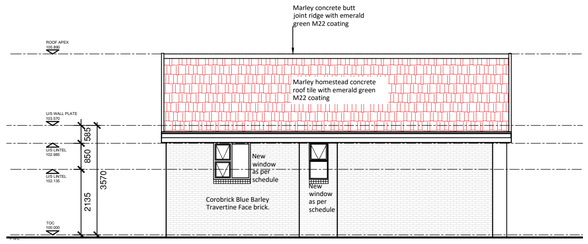

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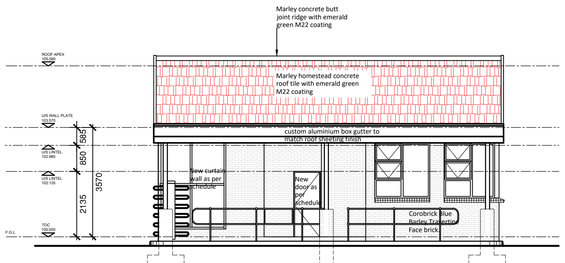

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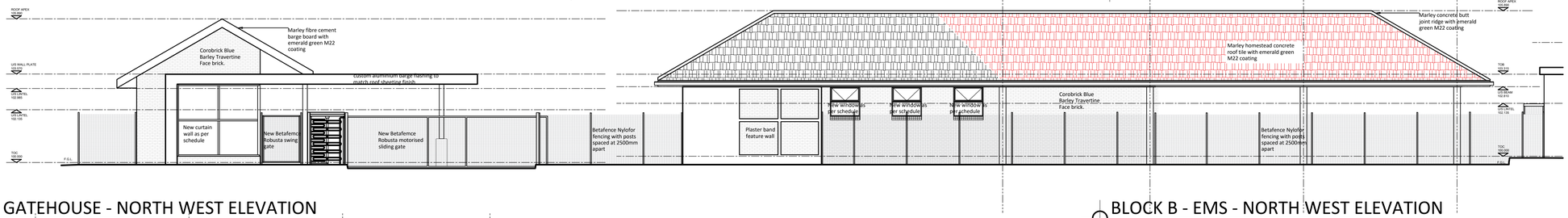

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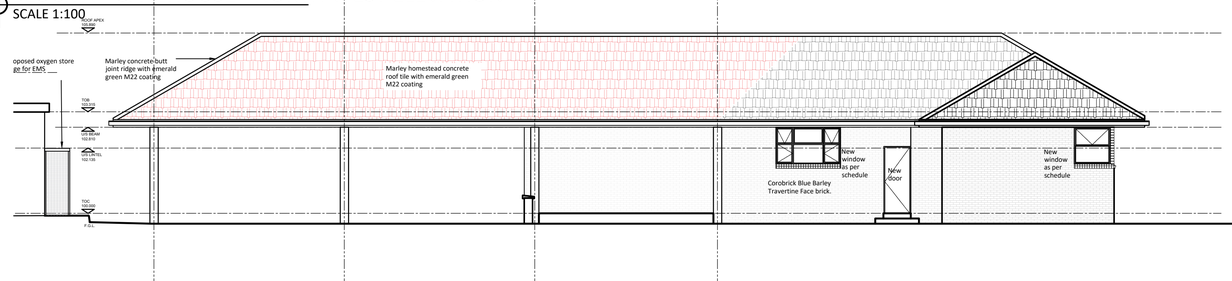

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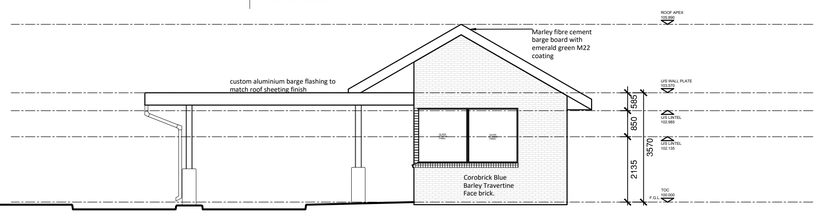
SCALE 1:100



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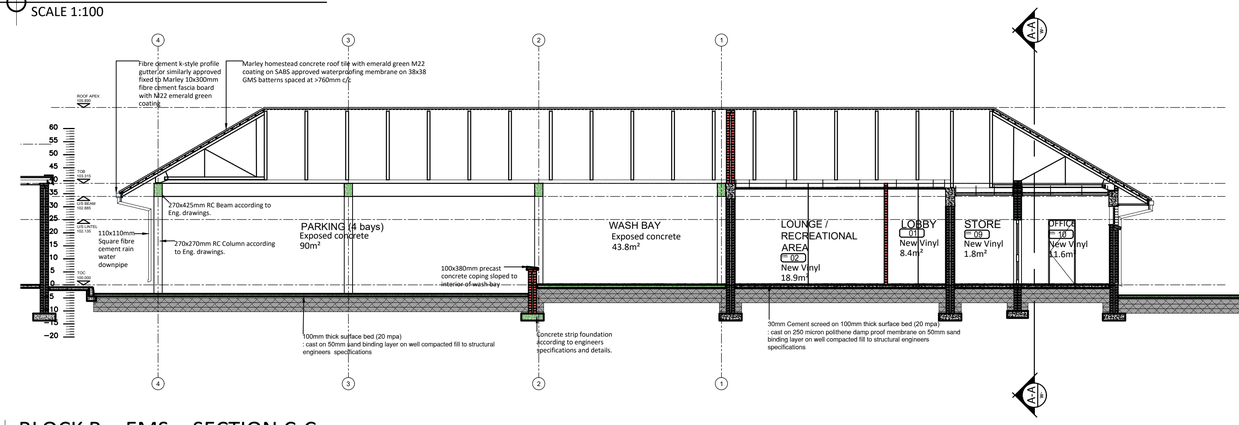

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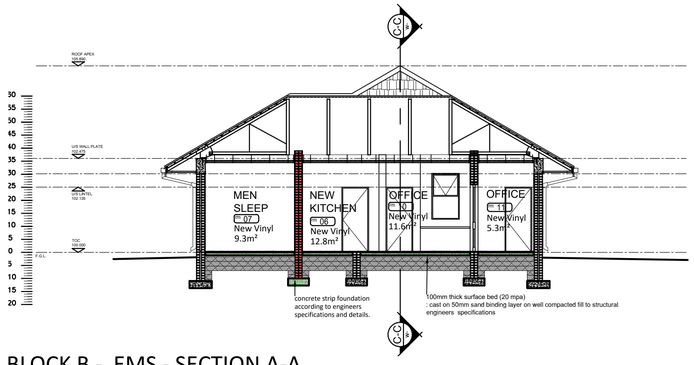

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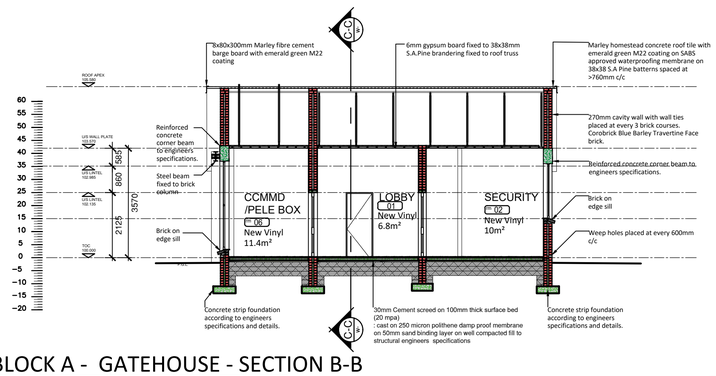

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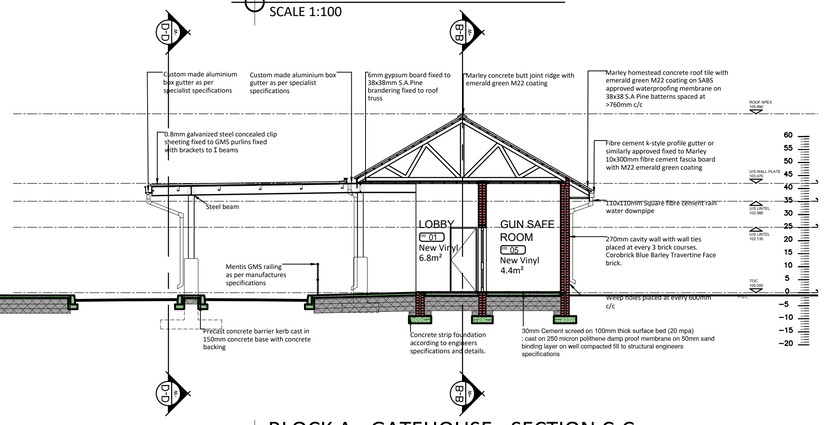

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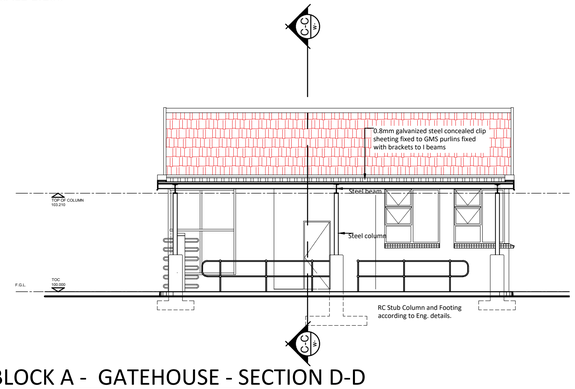

BLOCK A - GATEHOUSE - SECTION D-D
SCALE 1:100

general notes

SITE KEY

CAD
X:\BNM_Architect\3001-3500\3201-3300\3239_Motherwell CHC

notes
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revisions

date	rev	description
-	-	-

structural engineer — mechanical engineer — electrical engineer

BNM ARCHITECTS PROJECT MANAGERS
Brinkman Ndayi McAll (Pty) Ltd reg no. 2020/775519/07
tel +27 41 585 2125
fax +27 41 585 2127
email bnmpe@bnm.co.za
address suite 1 lyndon, 114 park drive, central, pe, 6001
postal address po box 12376, centrahil, port elizabeth, 6006

client: Province of the EASTERN CAPE HEALTH

project number: BNM REF: 3239

drawing name: BLOCK A & B PROPOSAL SECTIONS & ELEVATIONS

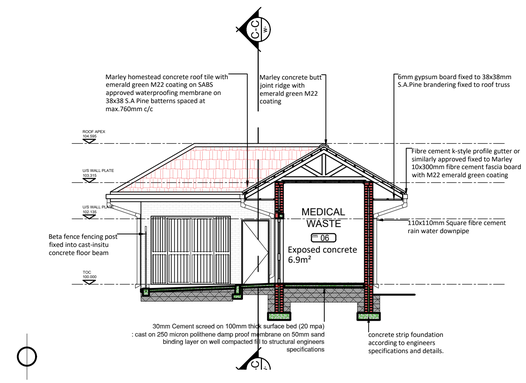
project details: SCMU3-22/23-0122-HO: MOTHERWELL CHC

drawing number: 3239_D_301

revision:

drawn	checked	scale	date
M.S	A.SWART SACAP 7061 PROF. ARCH.	1:100	08-11-2023

registered owner signature — architects signature



BLOCK D - WASTE STORE - SECTION E-E
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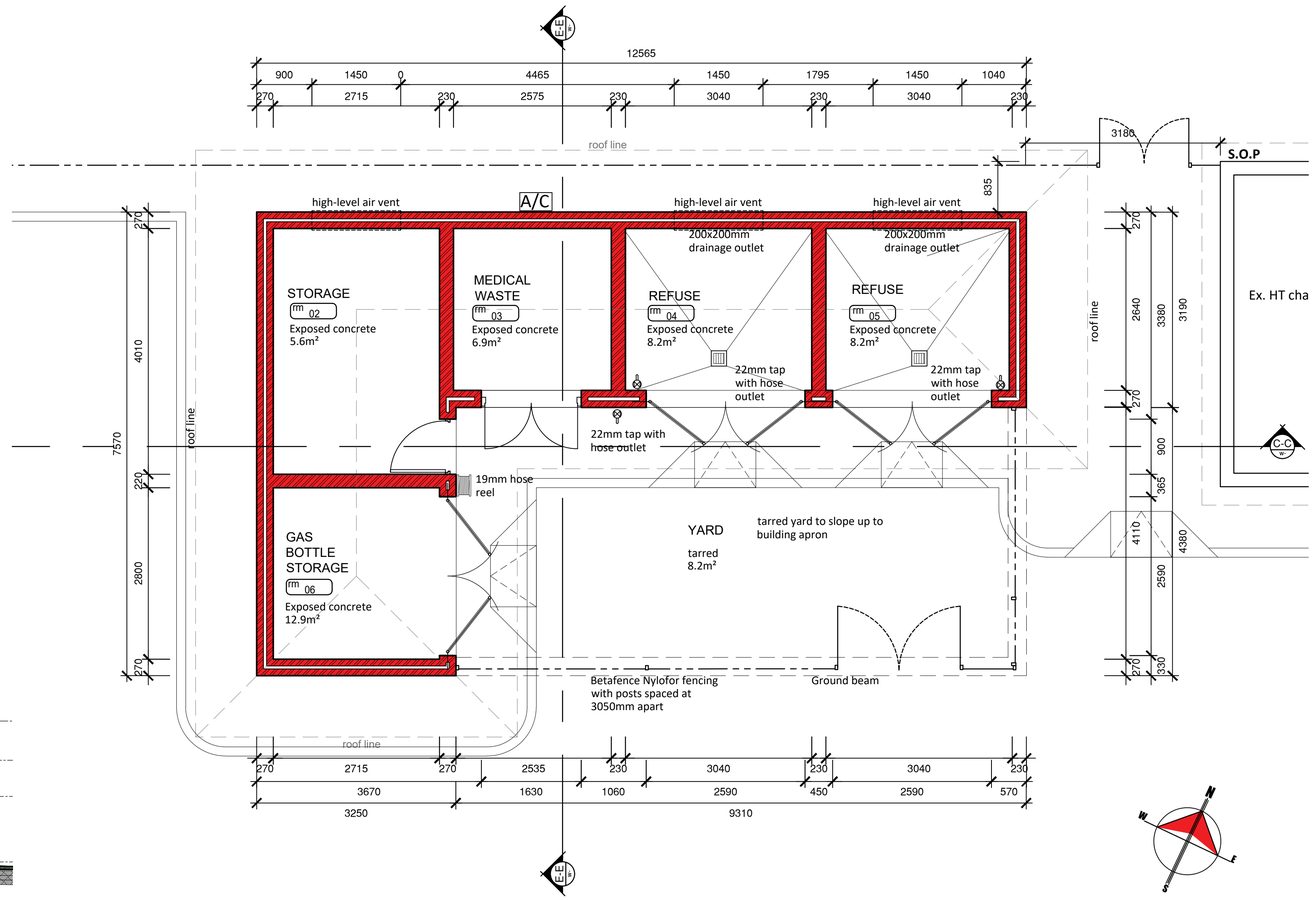

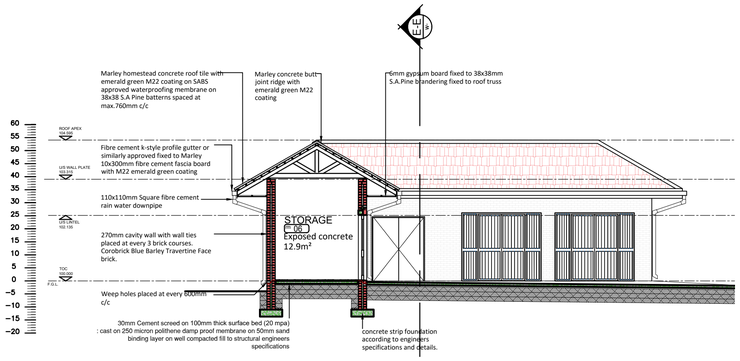

BLOCK D - WASTE STORE - SECTION C-C
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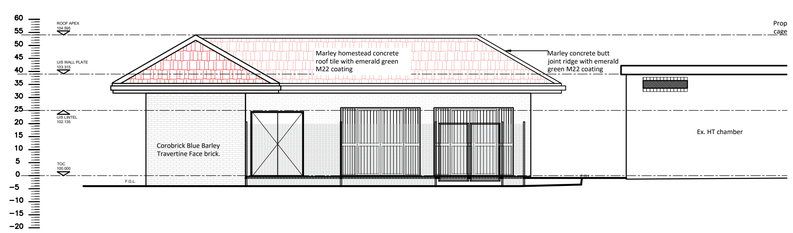
BLOCK D - WASTE STORE- KEY PLAN
SCALE 1:100



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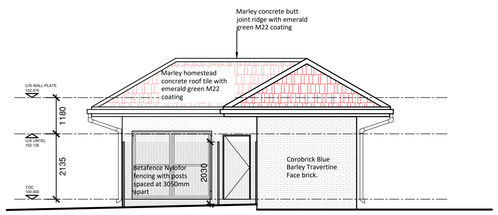

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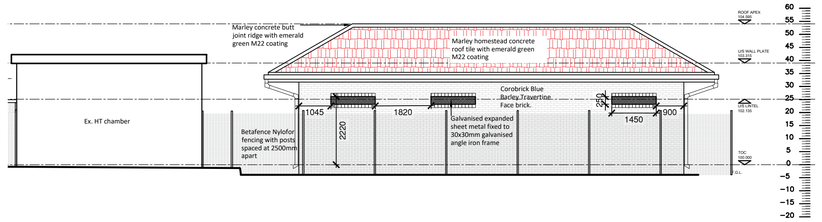
SCALE 1:100



BLOCK D - WASTE STORE - NORTH WEST ELEVATION
SCALE 1:100

general notes

SITE KEY

CAD
X:\BNM_Architect\3001-3500\3201-3300\3239_Motherwell CHC

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revisions

date	rev	description
-	-	-

structural engineer
mechanical engineer
electrical engineer

BNM ARCHITECTS PROJECT MANAGERS
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email bnmpe@bnm.co.za
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postal address po box 12376, centrahil, port elizabeth, 6006

client
Province of the EASTERN CAPE HEALTH

project number
BNM REF: 3239

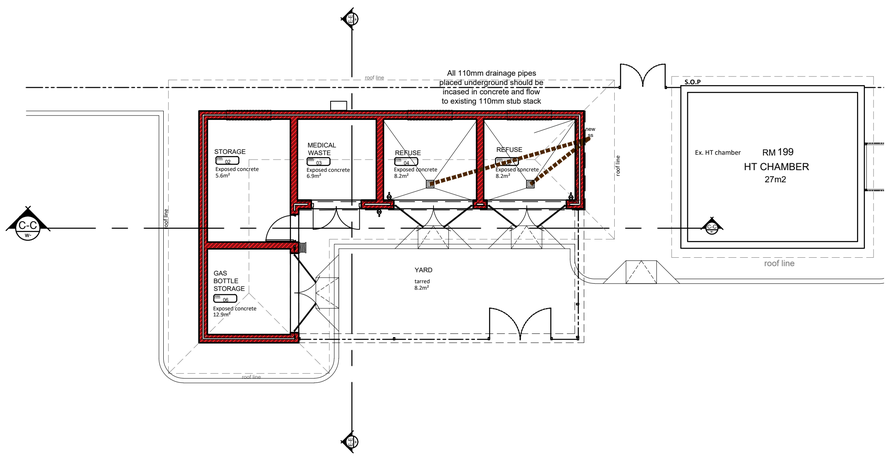
drawing name
BLOCK D - PROPOSAL PLANS

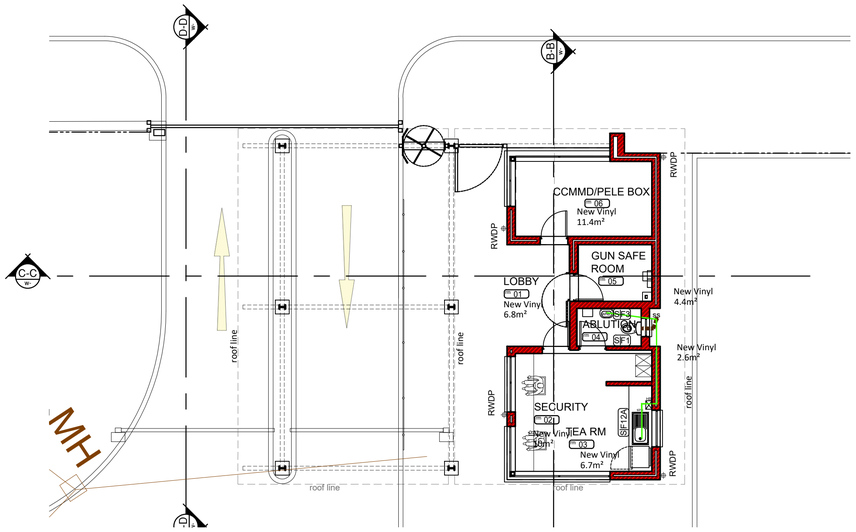
project details
SCMU3-22/23-0122-HO: MOTHERWELL CHC

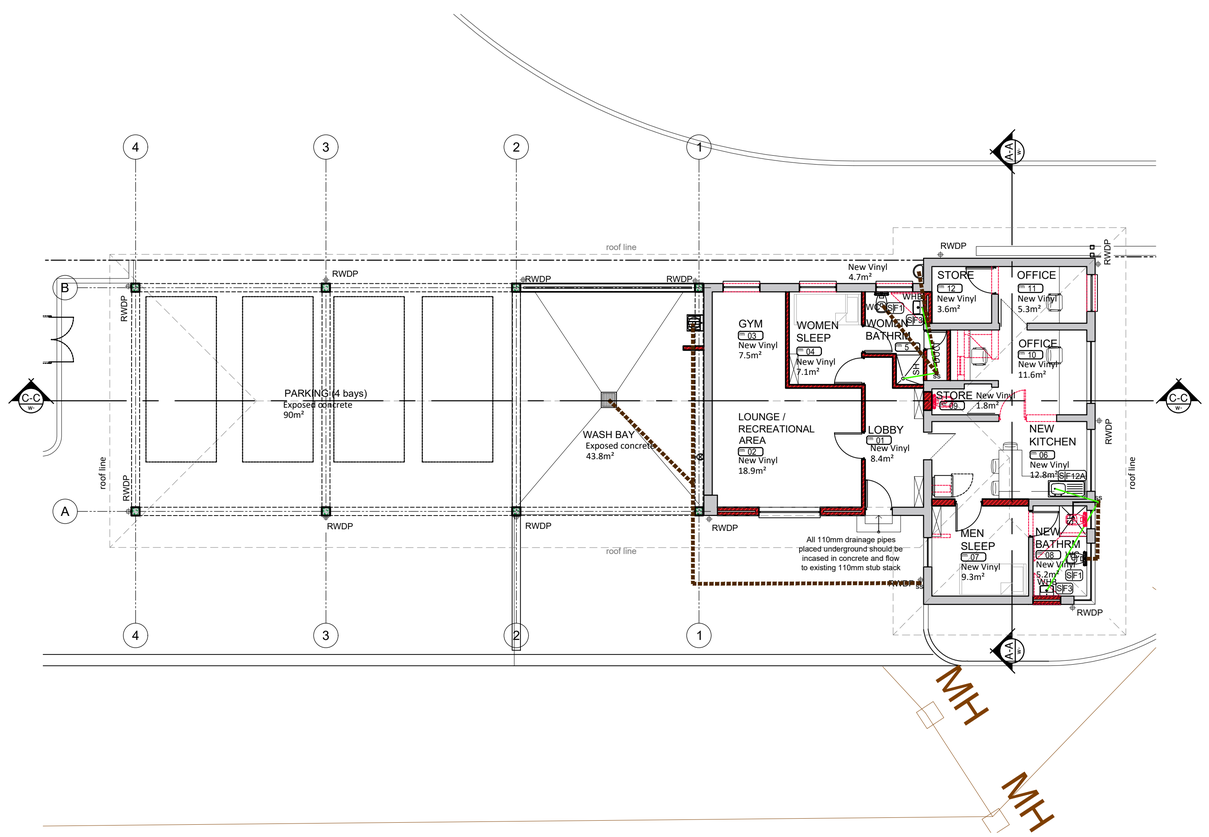
drawing number 3239_D_401
revision

drawn	checked	scale	date
M.S	A.SWART SACAP 7061 PROF. ARCH.	1:100	08-11-2023

registered owner signature
architects signature







BLOCK D - EMS / GATEHOUSE / REFUSE AND STORAGE- GROUND STOREY DRAINAGE PLAN

SCALE 1:100

general notes

SITE KEY

CAD

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notes

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revisions

date	rev	description
-	-	-

structural engineer

mechanical engineer
electrical engineer

BNM ARCHITECTS PROJECT MANAGERS
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address suite 1 lyndon, 114 park drive, central, pe, 6001
postal address po box 12376, centrahil, port elizabeth, 6006

client

Province of the EASTERN CAPE HEALTH

project number

BNM REF: 3239

drawing name

EMS / GATEHOUSE / REFUSE & STORAGE PROPOSAL
KEY PLAN

project details

SCMU3-22/23-0122-HO:
MOTHERWELL CHC

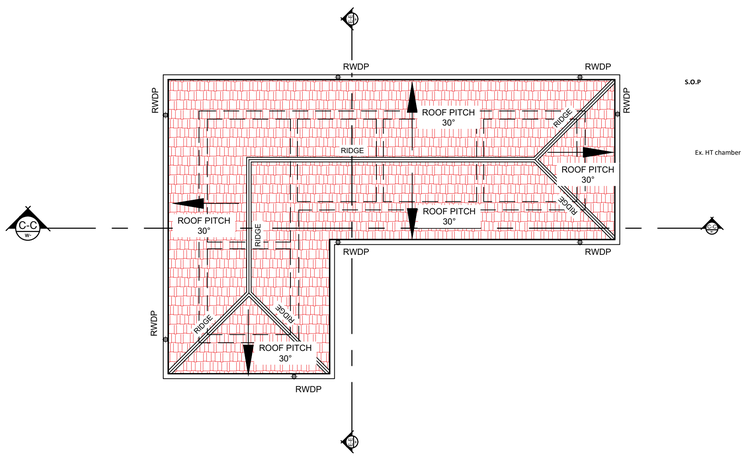
drawing number 3239_D_501

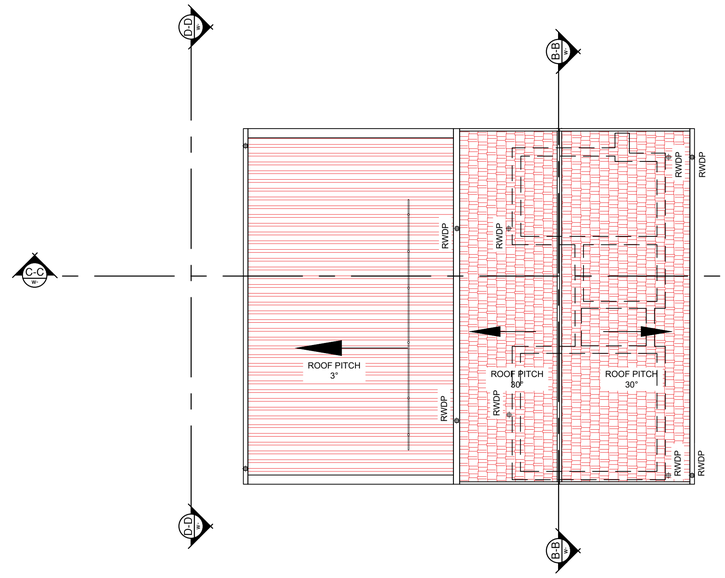
revision

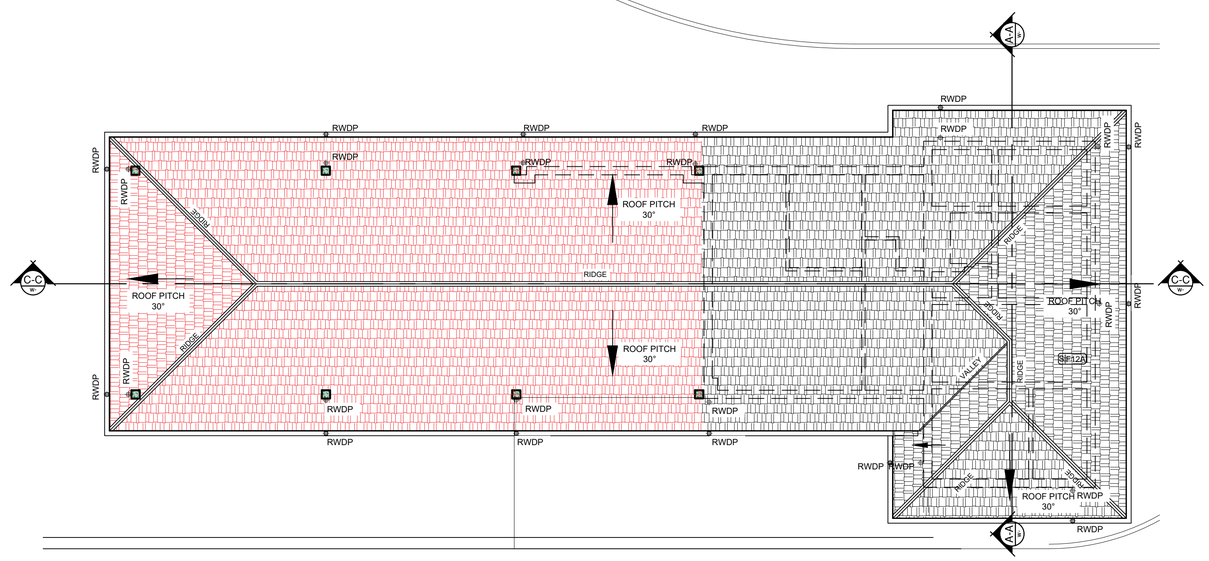
drawn	checked	scale	date
M.S	A.SWART *SACAP 7061* PROF. ARCH.	1:100	26-10-2023

registered owner signature

architects signature







BLOCK D - EMS / GATEHOUSE / REFUSE AND STORAGE- GROUND STOREY ROOF PLAN

SCALE 1:100

general notes

SITE KEY

CAD

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notes

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revisions

date	rev	description
-	-	-

structural engineer

mechanical engineer

electrical engineer

BNM ARCHITECTS PROJECT MANAGERS
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client

Province of the EASTERN CAPE HEALTH

project number

BNM REF: 3239

drawing name

EMS / GATEHOUSE / REFUSE & STORAGE PROPOSAL
ROOF PLAN

project details

SCMU3-22/23-0122-HO:
MOTHERWELL CHC

drawing number

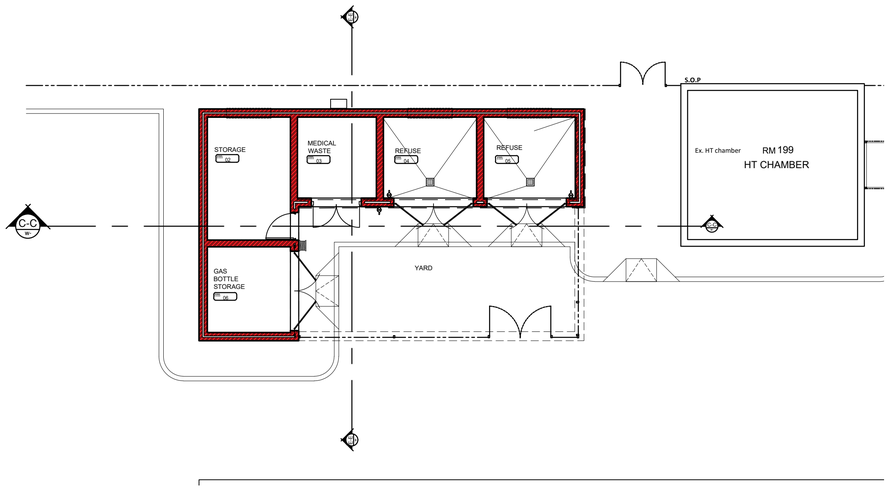
3239_D_502

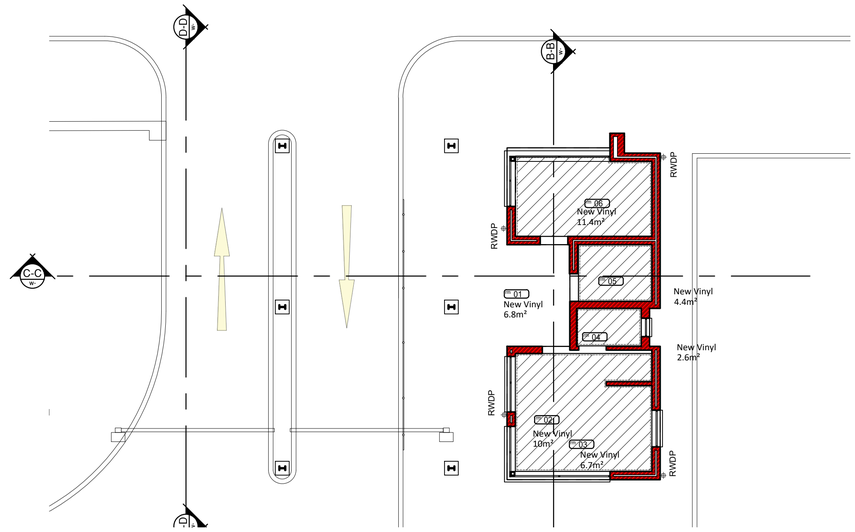
revision

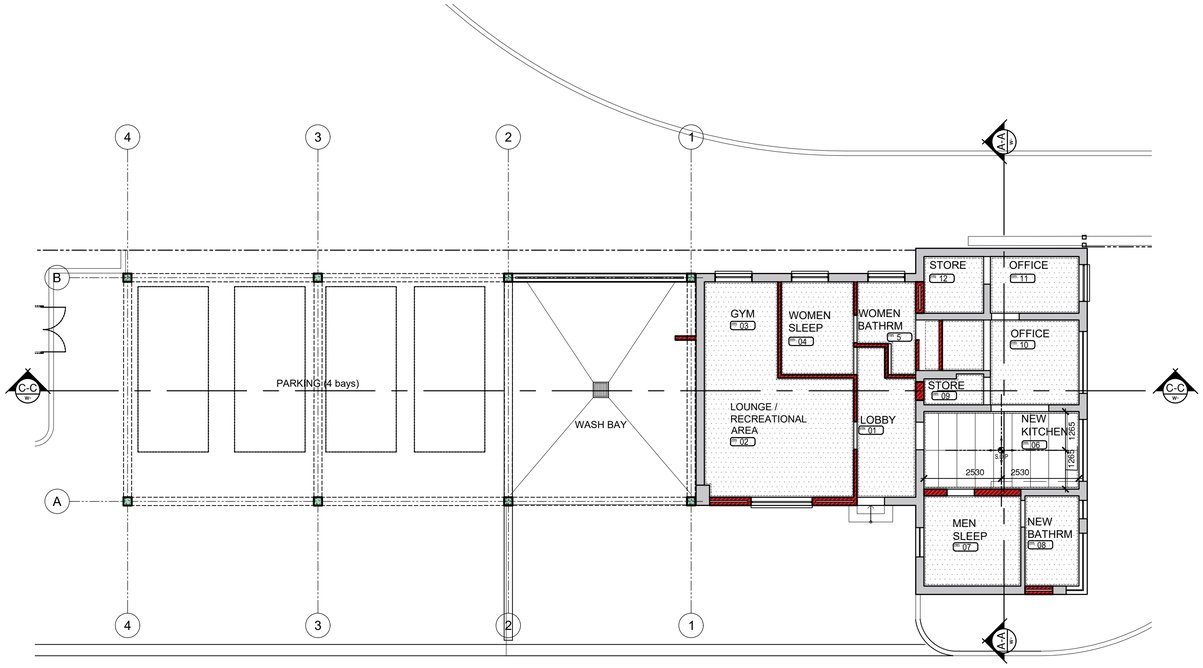
drawn	checked	scale	date
M.S	A.SWART SACAP 7061 PROF. ARCH.	1:100	26-10-2023

registered owner signature

architects signature







ACCESSORIES LEGEND:

shadow line	1200 X600mm exposed tee system ceiling
shadow line	600 x 600mm exposed tee system ceiling
shadow line	9.5mm Thick Fibre Cement board fixed to suspended ceiling frame and 40x12mm timber cover strip to all joints and edges.
shadow line	9.5mm Thick Fibre Cement boards fixed to supended ceiling frame, all skimmed. with 40x12mm timber cover strip to all edges / cornices.
	skim coated exposed soffit

BLOCK D - EMS / GATEHOUSE / REFUSE AND STORAGE- GROUND STOREY CEILING PLAN

SCALE 1:100

general notes

SITE KEY

CAD

X:\BNM_Architect\3001-3500\3201-3300\3239_Motherwell CHC

notes

The contractor is to verify all dimensions on site before commencing any part of the work. Errors, discrepancies or omissions are to be reported for clarification.

revisions

date	rev	description
-	-	-

structural engineer

mechanical engineer
electrical engineer

BNM ARCHITECTS PROJECT MANAGERS
Brinkman Ndayi McAll (Pty) Ltd reg no. 2020/775519/07
tel +27 41 585 2125
fax +27 41 585 2127
email bnmpe@bnm.co.za
address suite 1 lyndon, 114 park drive, central, pe, 6001
postal address po box 12376, centrahil, port elizabeth, 6006

client

Province of the EASTERN CAPE HEALTH

project number

BNM REF: 3239

drawing name

EMS / GATEHOUSE / REFUSE & STORAGE PROPOSAL
CIELING PLAN

project details

SCMU3-22/23-0122-HO:
MOTHERWELL CHC

drawing number

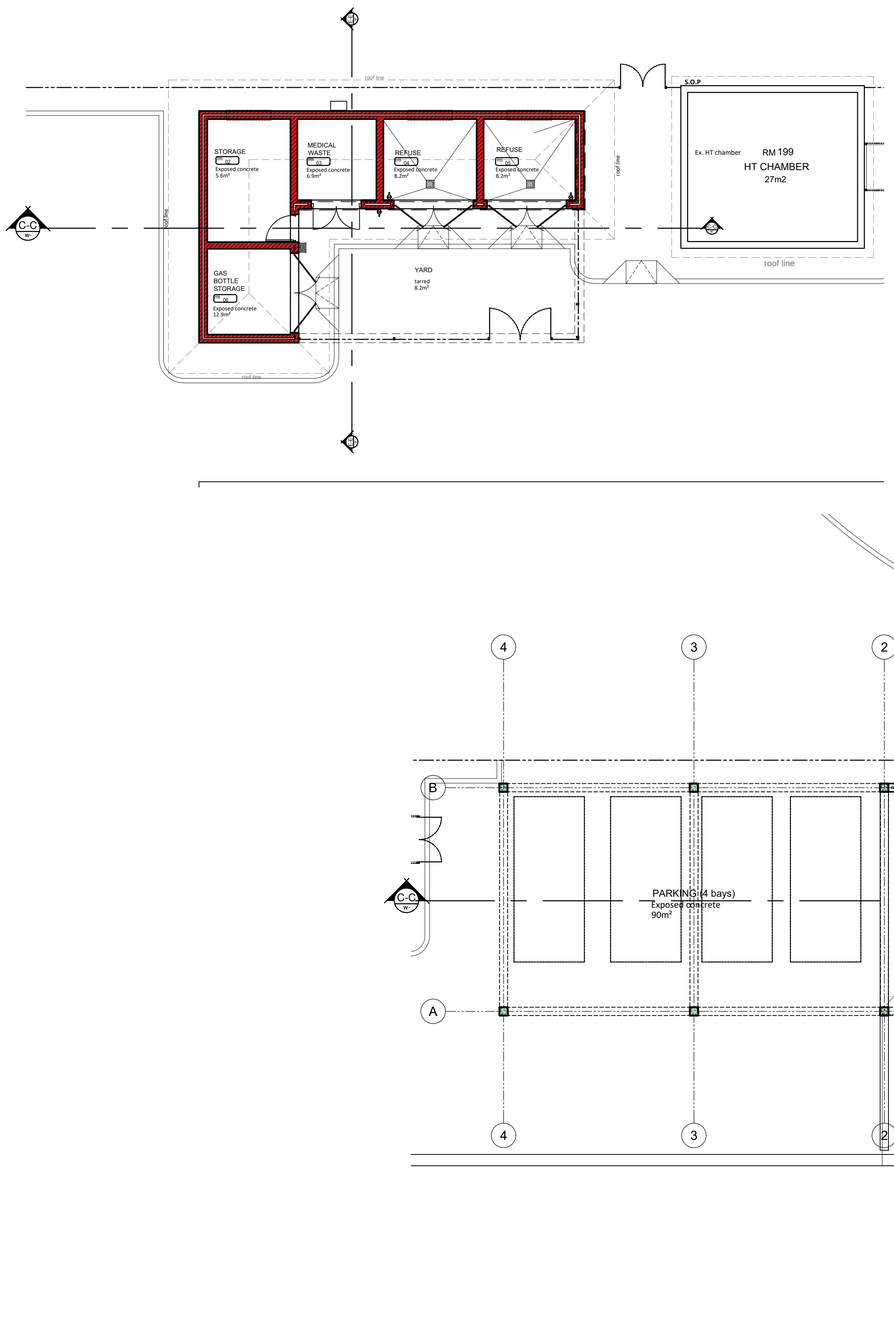
3239_D_503

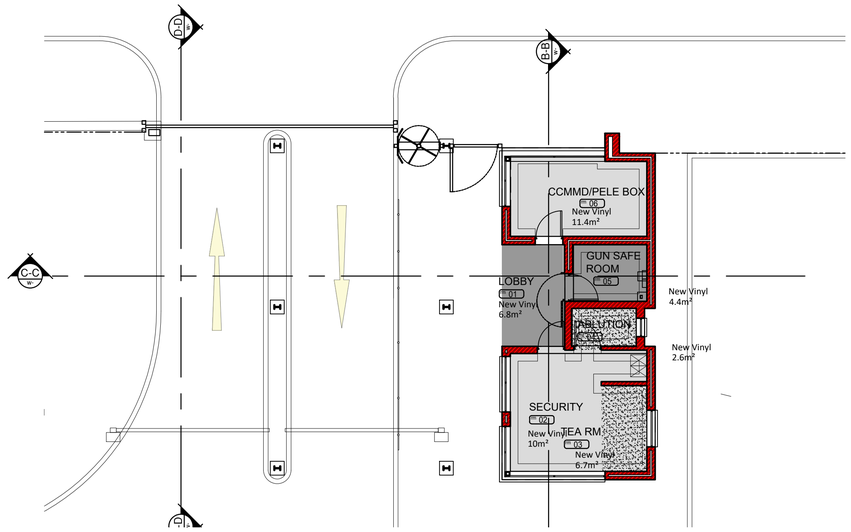
revision

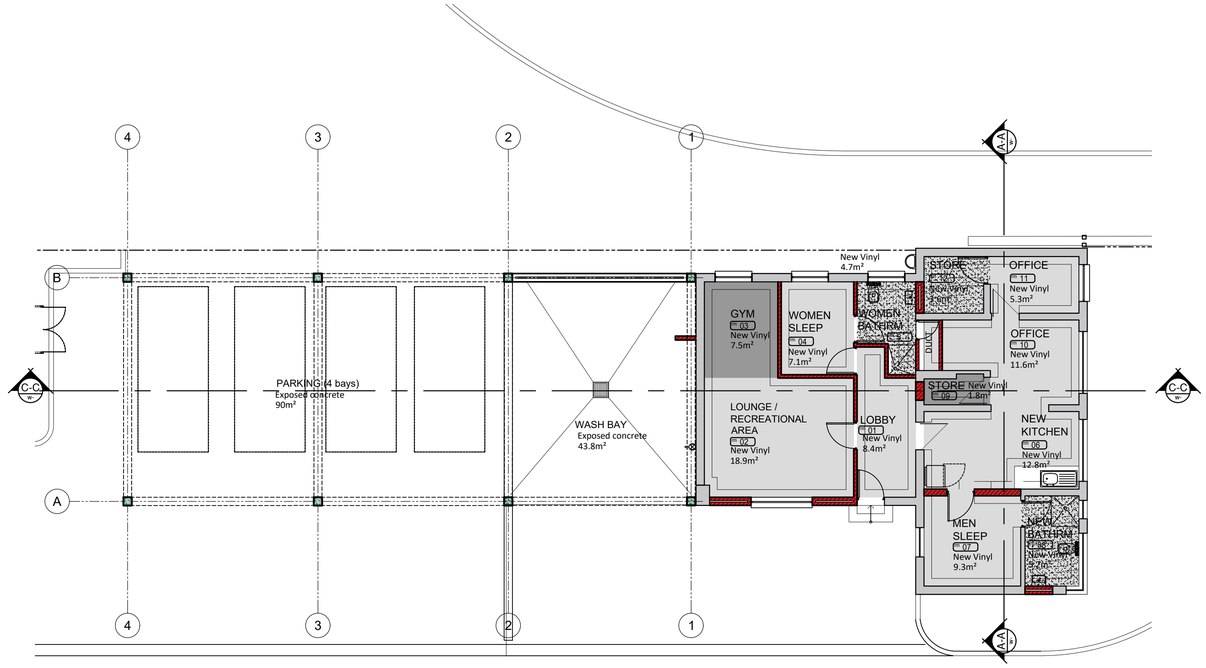
drawn	checked	scale	date
M.S	A.SWART SACAP 7061 PROF. ARCH.	1:100	26-10-2023

registered owner signature

architects signature







FLOOR FINISH KEY:

- ECOsurface: 3,2mm Thick recycled tire rubber flooring with EPDM multi-coloured flecks, colour: Moonrock. Install as per approved manufaturer's specification. Sealed after installation.
- CARPET: sound insulated
- MARMOLEUM: light grey
- MARMOLEUM: dark grey
- POLYSAFE: safety flooring
- EPOXY: workshop
- Easigrass EASI-PLAY artificial grass surface, laid on compacted / condensed platform surface with 30mm sand blinding layer, fixed to edges on 38x38 timber surround frame as per manufacturers specification
- PAVING: grey
- GRAVEL
- MARMOLEUM: green

BLOCK D - EMS / GATEHOUSE / REFUSE AND STORAGE- GROUND STOREY FLOOR FINISH PLAN

SCALE 1:100

general notes

SITE KEY

CAD

X:\BNM_Architect\3001-3500\3201-3300\3239_Motherwell CHC

notes

The contractor is to verify all dimensions on site before commencing any part of the work. Errors, discrepancies or omissions are to be reported for clarification.

revisions

date	rev	description
-	-	-

structural engineer

mechanical engineer
electrical engineer

BNM ARCHITECTS PROJECT MANAGERS
Brinkman Ndayi McAll (Pty) Ltd reg no. 2020/775519/07
tel +27 41 585 2125
fax +27 41 585 2127
email bnmpe@bnm.co.za
address suite 1 lyndon, 114 park drive, central, pe, 6001
postal address po box 12376, centrahil, port elizabeth, 6006

client

Province of the EASTERN CAPE HEALTH

project number

BNM REF: 3239

drawing name

EMS / GATEHOUSE / REFUSE & STORAGE PROPOSAL
FLOOR FINISH PLAN

project details

SCMU3-22/23-0122-HO:
MOTHERWELL CHC

drawing number

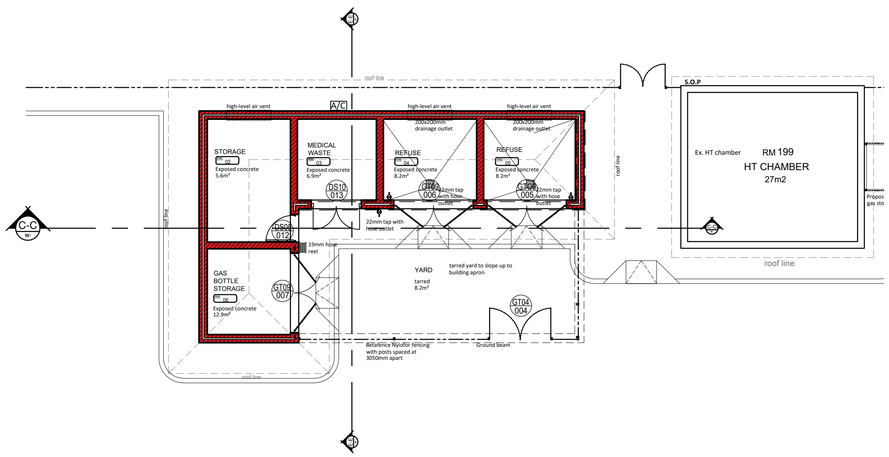
3239_D_504

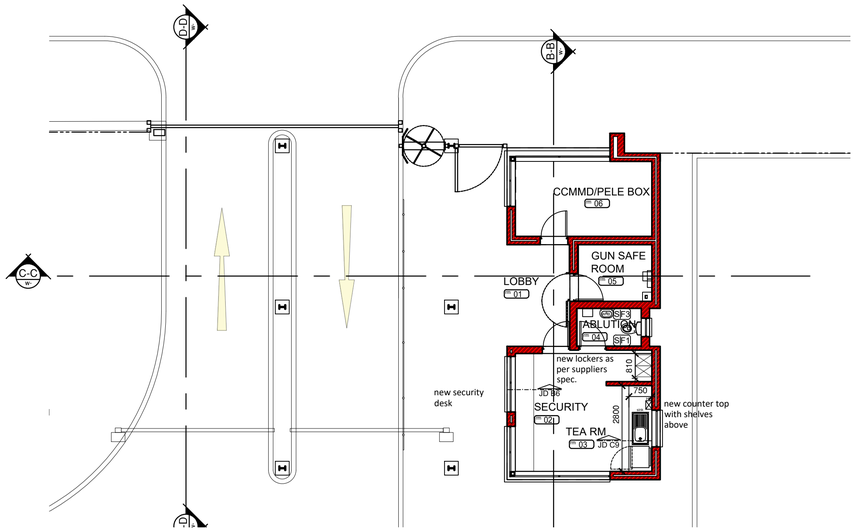
revision

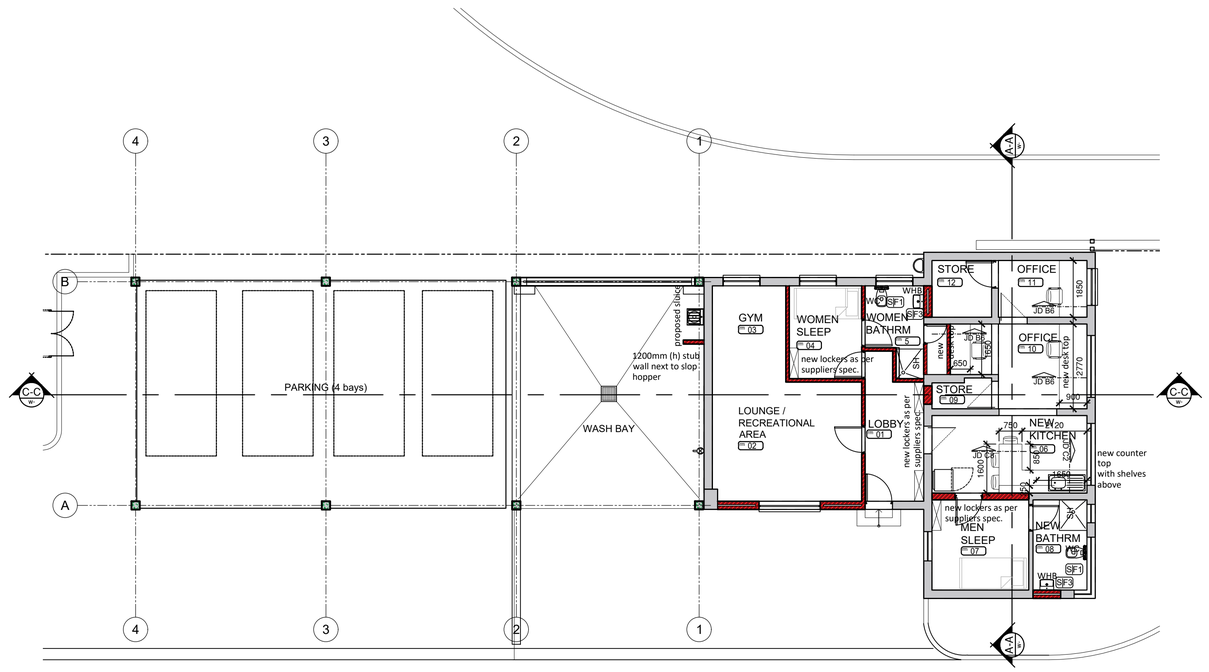
drawn	checked	scale	date
M.S	A.SWART *SACAP 7061* PROF. ARCH.	1:100	26-10-2023

registered owner signature

architects signature







BLOCK D - EMS / GATEHOUSE / REFUSE AND STORAGE- GROUND STOREY JOINERY PLAN

SCALE 1:100

general notes

SITE KEY

CAD

X:\BNM_Architect\3001-3500\3201-3300\3239_Motherwell CHC

notes

The contractor is to verify all dimensions on site before commencing any part of the work. Errors, discrepancies or omissions are to be reported for clarification.

revisions

date	rev	description
-	-	-

structural engineer

mechanical engineer
electrical engineer

BNM ARCHITECTS PROJECT MANAGERS
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client

Province of the EASTERN CAPE HEALTH

project number

BNM REF: 3239

drawing name

EMS / GATEHOUSE / REFUSE & STORAGE PROPOSAL JOINERY PLAN

project details

SCMU3-22/23-0122-HO: MOTHERWELL CHC

drawing number: 3239_D_505

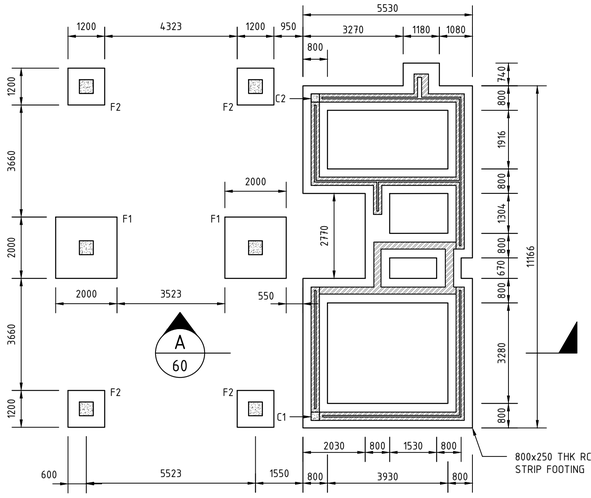
revision:

drawn	checked	scale	date
M.S	A.SWART SACAP 7061 PROF. ARCH.	1:100	26-10-2023

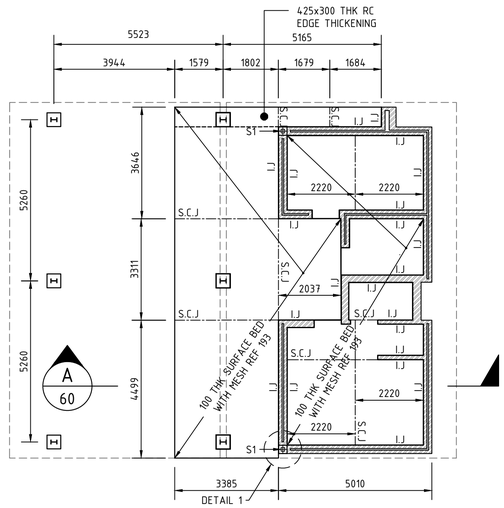
registered owner signature

architects signature

PLOT DATE 11 Feb 2024 TIME 15:33:26

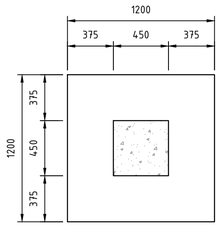


FOUNDATION LAYOUT
SCALE 1:100

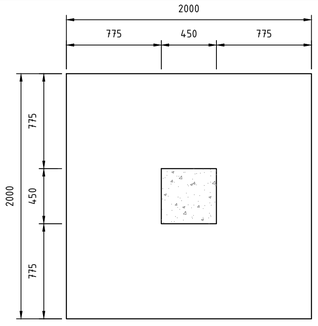


SURFACE BED LAYOUT
SCALE 1:100

NOTES:
1. F1 - 2000x2000x300 DEEP PAD FOOTING WITH 450x450x2000 HIGH STUB COLUMN
2. F2 - 1200x1200x300 DEEP PAD FOOTING WITH 450x450x1500 HIGH STUB COLUMN
3. C1 - 270x270x2185 HIGH STUB COLUMN
4. S1 - 75x75x4,5mm SHS GALVANIZED STEEL POST
5. I.J - ISOLATION JOINT
6. S.C.J - SAW CUT JOINT



PAD FOOTING (TYPE F2)
LAYOUT
SCALE 1:25



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LAYOUT
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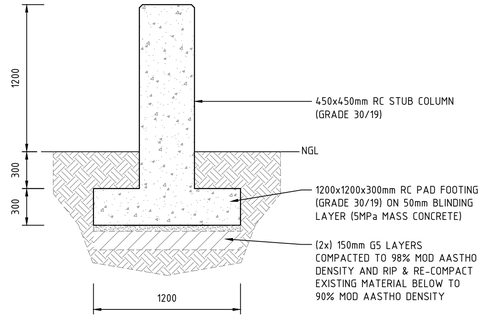
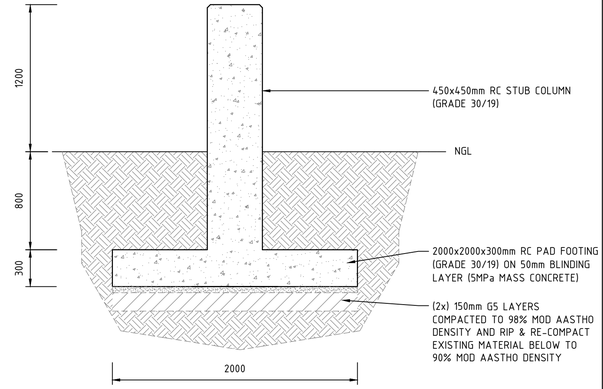


PAD FOOTING (TYPE F2)
TYPICAL SECTION
SCALE 1:25



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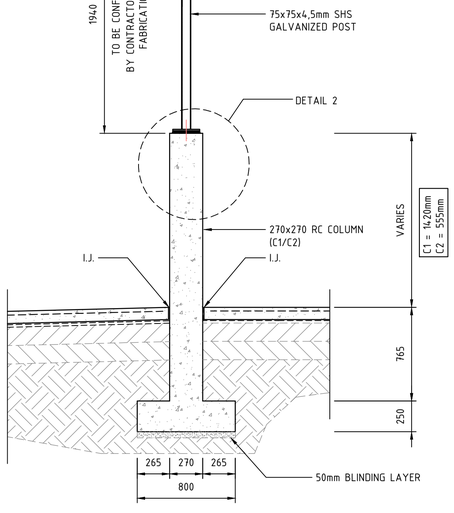
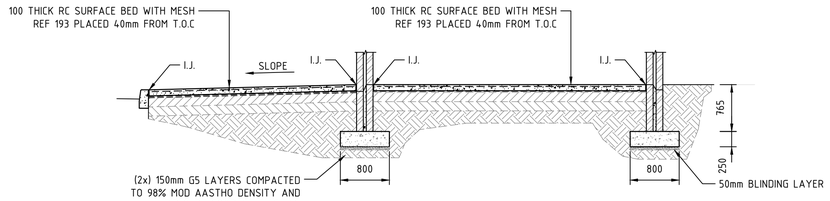
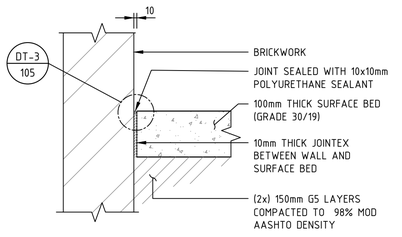
TYPICAL SECTION
SCALE 1:25



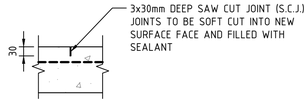
DETAIL 1
SCALE 1:25



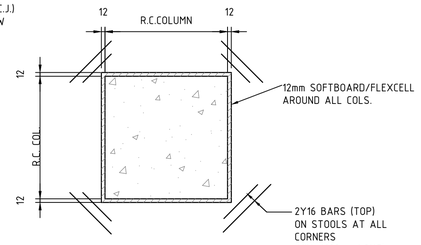
SECTION A
SCALE 1:50



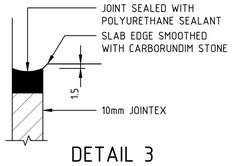
TYPICAL ISOLATION JOINT (I.J)
SECTION
SCALE 1:10



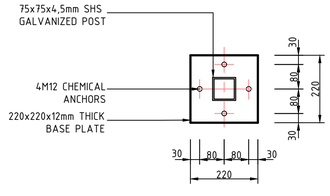
SAW CUT JOINT
TYPICAL DETAIL
SCALE 1:10



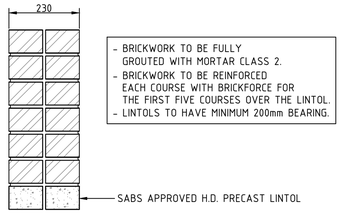
DETAILS OF COL. WHERE
NO SAWCUT JOINTS OCCURS
SCALE 1:10



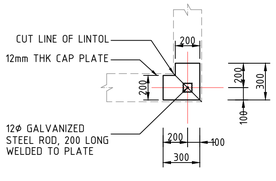
DETAIL 3
SECTION
SCALE 1:5



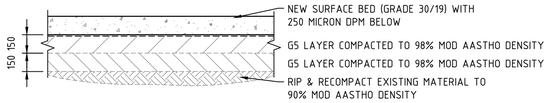
BASE PLATE DETAIL
DETAIL 2
SCALE 1:10



TYPICAL BRICK BEAM DETAIL
SCALE 1:10



CAP PLATE DETAIL
SCALE 1:25



TYPICAL LAYER WORKS UNDER
SURFACE BED
SCALE 1:25

FOR INFORMATION

REV.	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
A	06/01/2024	ISSUED FOR INFORMATION		

DRAWING APPROVED

ENGINEER : .....

PR ENG No. : .....

SIGNATURE : .....

TITLE	NAME
DRAFTER	A.SIBIYA
DRAFTING CHECK	S.GIRD
DESIGNER	A.SIBIYA
DESIGN CHECK	A.SIBIYA
PROJECT MANAGER	J.KAMPMAN
PROJECT DIRECTOR	J.KAMPMAN

SCALES AT AN A1 SIZE DRAWING

SCALE 1:10 0.1 0 0.1 0.2 0.3 0.4 0.5

SCALE 1:2 0.01 0 0.02 0.04 0.06 0.08 0.1

DESIGNER

SMEC South Africa
Member of the Surbana Jurong Group
SABS ISO 9001

SMEC PROJECT No EC0027

CLIENT

Province of the EASTERN CAPE EDUCATION

EASTERN CAPE DEPARTMENT OF HEALTH

MOTHERWELL CHC

BLOCK A -SECURITY/ GATEHOUSE

FOUNDATION AND SURFACE BED LAYOUT & DETAILS

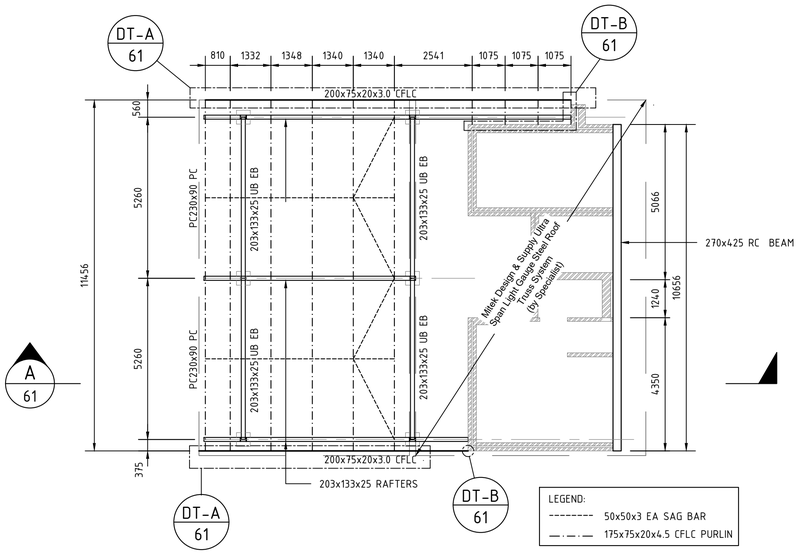
STRUCTURAL DRAWING

PHASE	DRAWING TYPE	DRAWING NUMBER	REVISION
1	DRW	61	A

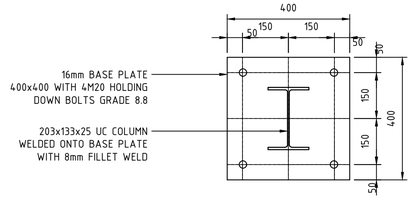
DRAWING FILE LOCATION / NAME

150 mm ON ORIGINAL A1

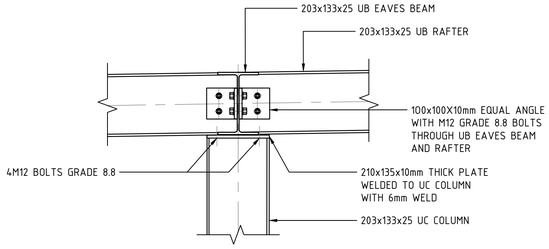
PLOT DATE 11 Feb 2024 TIME 15:34:52



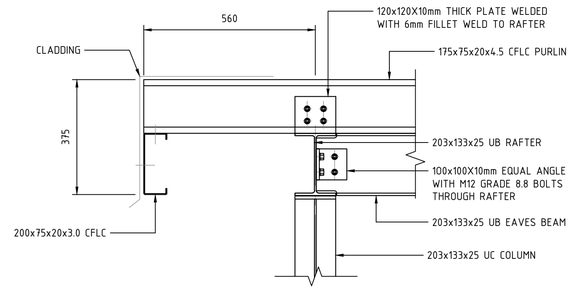
ROOF LAYOUT
SCALE 1:100



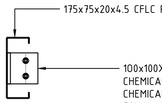
COLUMN BASE PLATE CONNECTION DETAILS
SCALE 1:10



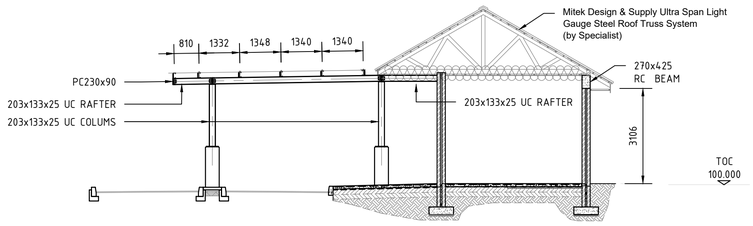
RAFTER & COLUMN CONNECTION DETAILS
SCALE 1:10



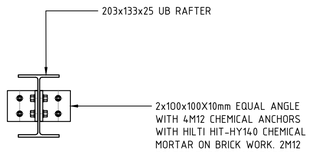
CLADDING SUPPORT & EDGE CONNECTION DETAIL A
SCALE 1:10



PURLIN TO BRICK WALL CONNECTION DETAIL B
SCALE 1:10



SECTION A
SCALE 1:100



RAFTER TO BRICK WALL CONNECTION
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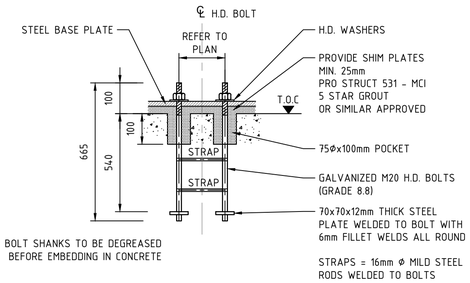
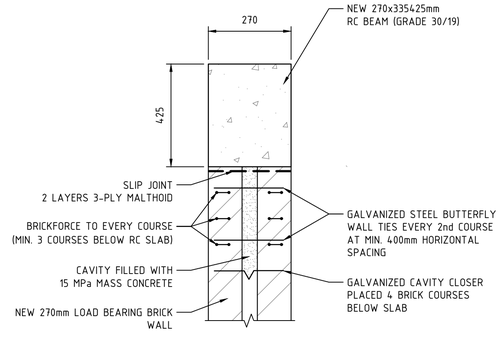


M20 H.D. BOLTS
SCALE 1:10



RING BEAM DETAILS
SCALE 1:10

FOR INFORMATION

REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
A	09/02/2024	ISSUED FOR INFORMATION		

DRAWING APPROVED
ENGINEER : .....
PR ENG No. : .....
SIGNATURE : .....

TITLE	NAME
DRAFTER	A.SIBIYA
DRAFTING CHECK	S.GIRD
DESIGNER	A.SIBIYA
DESIGN CHECK	A.SIBIYA
PROJECT MANAGER	J.KAMPMAN
PROJECT DIRECTOR	J.KAMPMAN

SCALES AT AN A1 SIZE DRAWING
SCALE 1:10 0.1 0 0.1 0.2 0.3 0.4 0.5
SCALE 1:2 0.01 0 0.02 0.04 0.06 0.08 0.1

DESIGNER
SMEC South Africa
Member of the Surbana Jurong Group
SABS ISO 9001
SMEC PROJECT No EC0027

CLIENT
Province of the EASTERN CAPE EDUCATION

EASTERN CAPE DEPARTMENT OF HEALTH
MOTHERWELL CHC
BLOCK A -SECURITY/ GATEHOUSE
ROOF LAYOUT, SECTIONS & DETAILS
STRUCTURAL DRAWING

PHASE	DRAWING TYPE	DRAWING NUMBER	REVISION
1	DRW	61	A

DRAWING FILE LOCATION / NAME
150 mm ON ORIGINAL
A1
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PLOT DATE 12 Feb 2024 TIME 11:20:04

DRAWING FILE LOCATION / NAME

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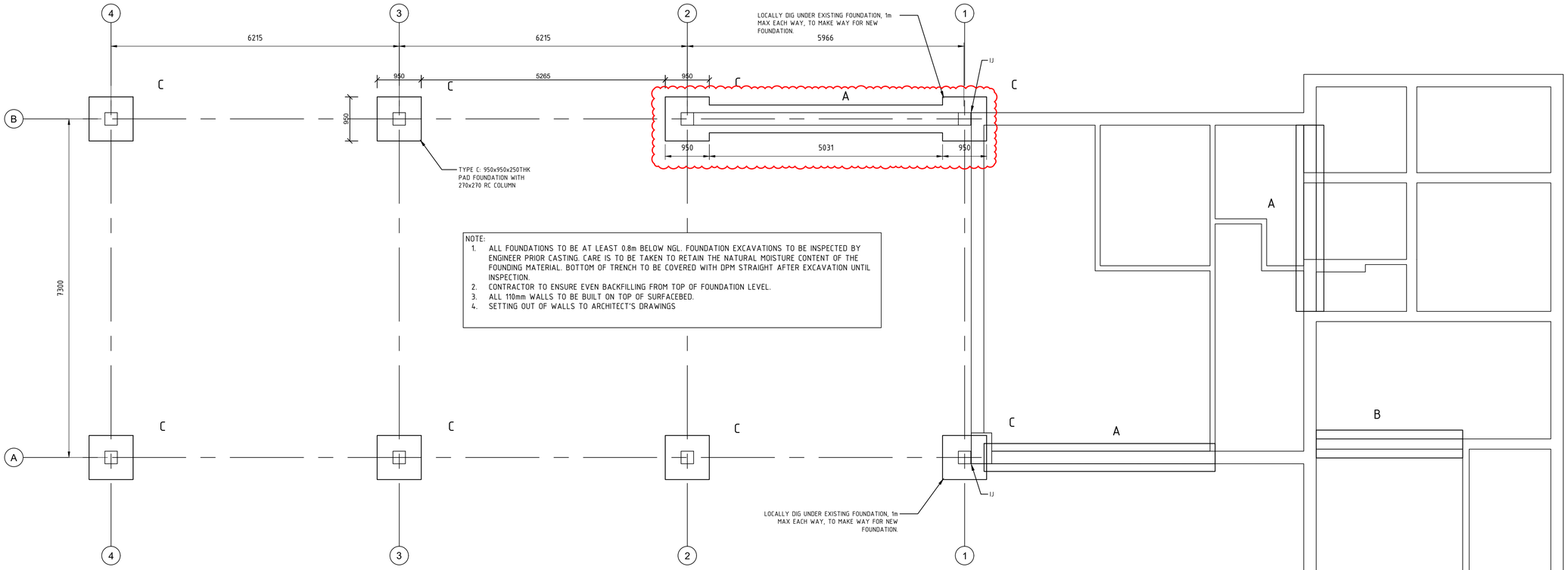
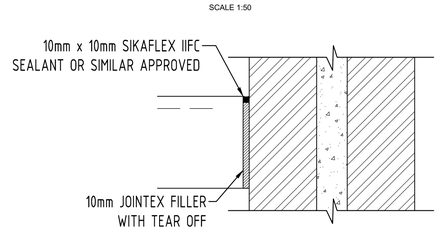
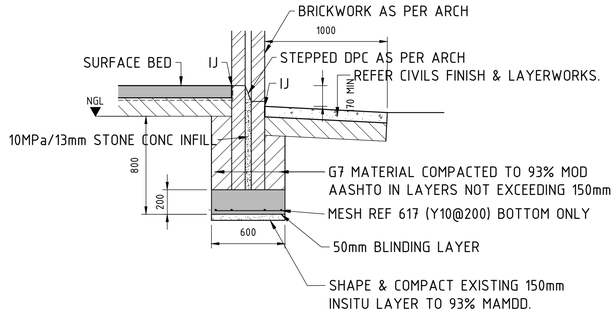


NOTE:
1. ALL FOUNDATIONS TO BE AT LEAST 0.8m BELOW NGL. FOUNDATION EXCAVATIONS TO BE INSPECTED BY ENGINEER PRIOR CASTING. CARE IS TO BE TAKEN TO RETAIN THE NATURAL MOISTURE CONTENT OF THE FOUNDING MATERIAL. BOTTOM OF TRENCH TO BE COVERED WITH DPM STRAIGHT AFTER EXCAVATION UNTIL INSPECTION.
2. CONTRACTOR TO ENSURE EVEN BACKFILLING FROM TOP OF FOUNDATION LEVEL.
3. ALL 110mm WALLS TO BE BUILT ON TOP OF SURFACEBED.
4. SETTING OUT OF WALLS TO ARCHITECT'S DRAWINGS

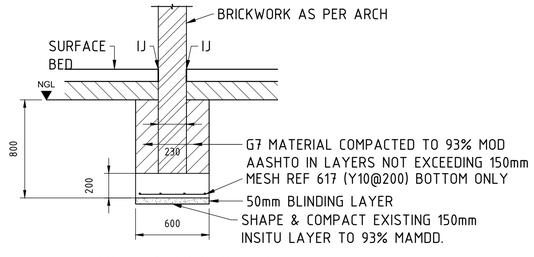
FOUNDATION LAYOUT
BLOCK B
SCALE 1:50



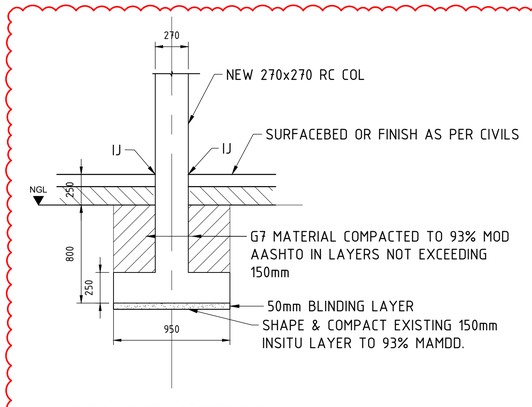
TYPICAL
ISOLATION JOINT (IJ)
SCALE 1:5



TYPICAL TYPE A SECTION THRU
270mm EXTERNAL WALLS
SCALE 1:25



TYPICAL TYPE B SECTION THRU
230mm INTERNAL WALLS
SCALE 1:25



TYPICAL TYPE C SECTION THRU
CANOPY RC COLUMNS
SCALE 1:25

GENERAL NOTES : CONCRETE

CONCRETE STRENGTH	
(A) FOUNDATIONS.....	30 Mpa cube strength at 28 days
(B) COLUMNS.....	30 Mpa cube strength at 28 days
(C) BEAMS AND SLABS.....	30 Mpa cube strength at 28 days
(D) SURFACE BEDS.....	30 Mpa cube strength at 28 days
CONCRETE COVER TO REINFORCING	
(A) SLABS.....	30 mm
(B) BEAMS.....	30 mm
(C) COLUMNS.....	30 mm
(D) SURFACE BEDS.....	30 mm
(E) FOUNDATIONS.....	50 mm

NOTE:
1. BEAM DEPTH INCLUDES SLAB THICKNESS
2. CONTRACTOR IS TO MAINTAIN STEEL IN CORRECT POSITION AFTER PLACING AND DURING CONCRETING
3. STONE, SAND AND CEMENT TO BE TO THE SATISFACTION OF THE CONSULTING ENGINEER.
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6. NO STRUCTURAL ALTERATIONS TO BE MADE WITHOUT THE APPROVAL OF THE CONSULTING ENGINEER.
7. THE STRUCTURE HAS BEEN DESIGNED FOR THE FOLLOWING CONDITIONS:
   (A) SAFE GROUND PRESSURE..... 100 kN/sq m
   (B) LIVE LOAD ON SLAB..... 1.5 kN/sq m
8. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL AND THE CIVIL ENGINEERING DRAWINGS.
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11. THIS DRAWING IS NOT TO BE SCALED.

REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
0	09/12/2024	ISSUED FOR INFORMATION		
A	12/02/2024	ISSUED FOR INFORMATION		

DRAWING APPROVED

ENGINEER : .....

PR ENG No. : .....

SIGNATURE : .....

TITLE	NAME
DRAFTER	S.GIRD
DRAFTING CHECK	A.SIBIYA
DESIGNER	S.GIRD
DESIGN CHECK	A.SIBIYA
PROJECT MANAGER	J.KAMPMAN
PROJECT DIRECTOR	J.KAMPMAN

SCALES AT AN A1 SIZE DRAWING
SCALE 1:10 — 0.1 0 0.1 0.2 0.3 0.4 0.5
SCALE 1:2 — 0.01 0 0.02 0.04 0.06 0.08 0.1

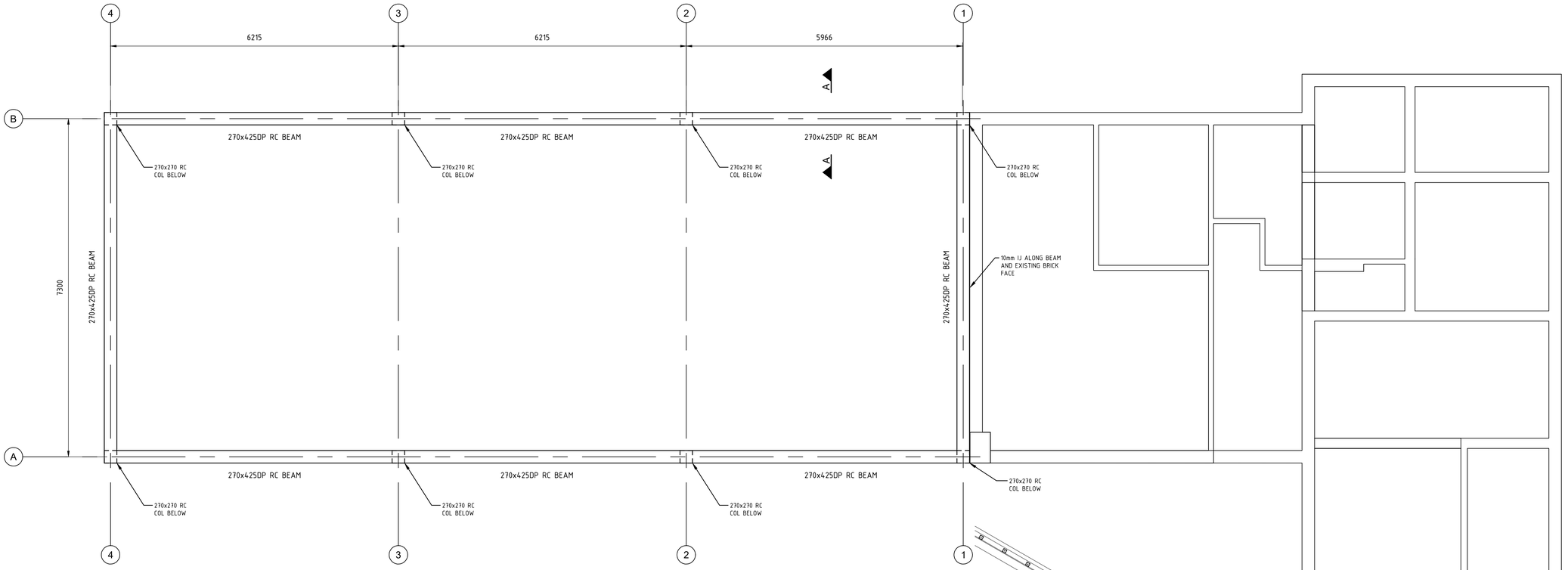
DESIGNER
SMEC
Member of the Surbana Jurong Group
SMEC PROJECT No EC0034

CLIENT
health
Department: Health
REPUBLIC OF SOUTH AFRICA

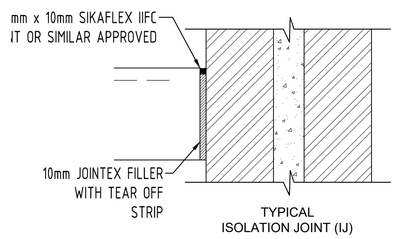
EASTERN CAPE DEPARTMENT OF HEALTH
MOTHERWELL CHC
BLOCK B
SUPPORT FACILITY FOUNDATION LAYOUT
STRUCTURAL DRAWING

PHASE	DRAWING TYPE	DRAWING NUMBER	REVISION
1	DRW	062	B

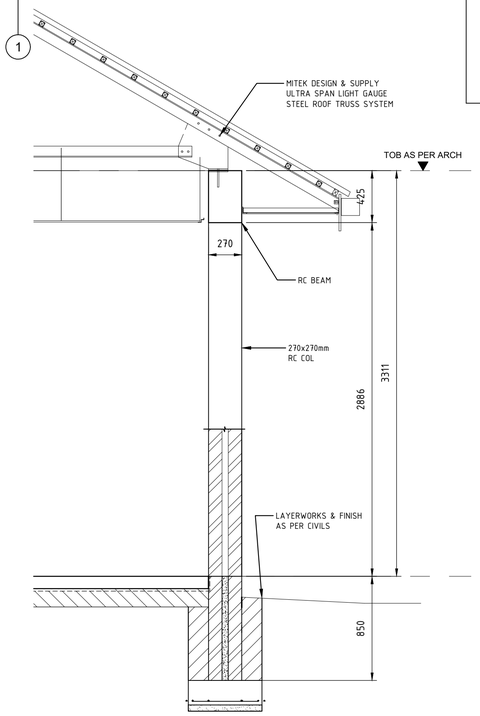
PLOT DATE 12 Feb 2024
TIME 11:20:50



EAVES BEAM LAYOUT
BLOCK B
SCALE 1:50



TYPICAL
ISOLATION JOINT (IJ)
SCALE 1:5



SECTION A-A
SCALE 1:25

GENERAL NOTES : CONCRETE

CONCRETE STRENGTH

(A) FOUNDATIONS.....	30 Mpa cube strength at 28 days
(B) COLUMNS.....	30 Mpa cube strength at 28 days
(C) BEAMS AND SLABS.....	30 Mpa cube strength at 28 days
(D) SURFACE BEDS.....	30 Mpa cube strength at 28 days

CONCRETE COVER TO REINFORCING

(A) SLABS.....	30 mm
(B) BEAMS.....	30 mm
(C) COLUMNS.....	30 mm
(D) SURFACE BEDS.....	30 mm
(E) FOUNDATIONS.....	50 mm

NOTE:

1. BEAM DEPTH INCLUDES SLAB THICKNESS.
2. CONTRACTOR IS TO MAINTAIN STEEL IN CORRECT POSITION AFTER PLACING AND DURING CONCRETING
3. STONE, SAND AND CEMENT TO BE TO THE SATISFACTION OF THE CONSULTING ENGINEER.
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REV	DATE	AMENDMENT / REVISION DESCRIPTION	WYR No.	APPROVAL
0	12/02/2024	ISSUED FOR INFORMATION		

DRAWING APPROVED
ENGINEER : .....
PR ENG No. : .....
SIGNATURE : ..... TITLE NAME

DRAFTER	S.GIRD
DRAFTING CHECK	A.SIBIYA
DESIGNER	S.GIRD
DESIGN CHECK	A.SIBIYA
PROJECT MANAGER	J.KAMPMAN
PROJECT DIRECTOR	J.KAMPMAN

SCALES AT AN A1 SIZE DRAWING
SCALE 1:10 0.1 0 0.1 0.2 0.3 0.4 0.5
SCALE 1:2 0.01 0 0.02 0.04 0.06 0.08 0.1

DESIGNER
SMEC
Member of the Surbana Jurong Group
SMEC PROJECT No EC0034

CLIENT
health
Department: Health
REPUBLIC OF SOUTH AFRICA

EASTERN CAPE DEPARTMENT OF HEALTH
MOTHERWELL CHC
BLOCK B
EAVES BEAM LAYOUT
STRUCTURAL DRAWING

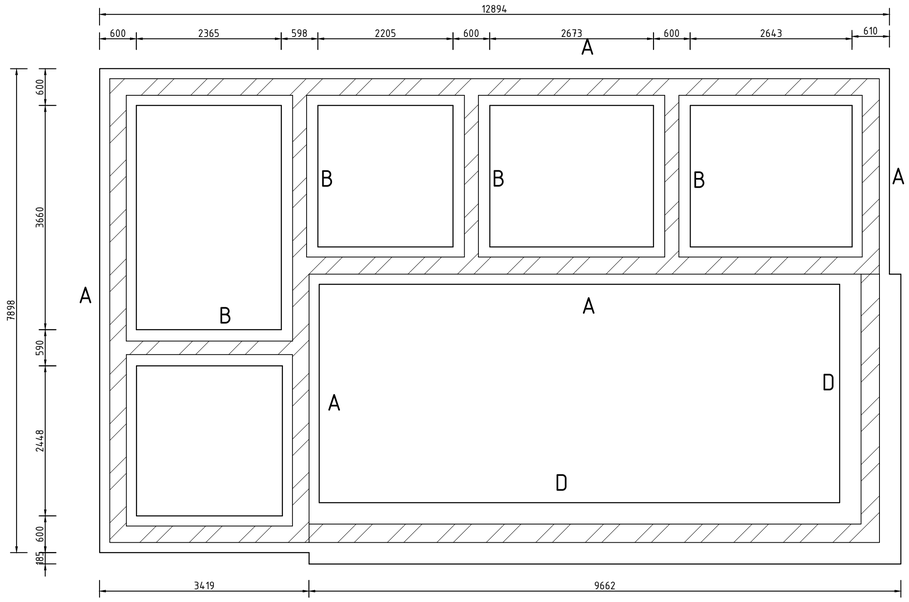
PHASE	DRAWING TYPE	DRAWING NUMBER	REVISION
1	DRW	063	A

DRAWING FILE LOCATION / NAME
150 mm ON ORIGINAL
A1
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

PLOT DATE 09 Feb 2024 TIME 19:29:22

DRAWING FILE LOCATION / NAME

150 mm ON ORIGINAL A1



NOTE:
1. ALL FOUNDATIONS TO BE AT LEAST 0.8m BELOW NGL. FOUNDATION EXCAVATIONS TO BE INSPECTED BY ENGINEER PRIOR CASTING. CARE IS TO BE TAKEN TO RETAIN THE NATURAL MOISTURE CONTENT OF THE FOUNDING MATERIAL. BOTTOM OF TRENCH TO BE COVERED WITH DPM STRAIGHT AFTER EXCAVATION UNTIL INSPECTION.
2. CONTRACTOR TO ENSURE EVEN BACKFILLING FROM TOP OF FOUNDATION LEVEL.
3. ALL 110mm WALLS TO BE BUILT ON TOP OF SURFACEBED.
4. SETTING OUT OF WALLS TO ARCHITECT'S DRAWINGS

FOUNDATION LAYOUT
BLOCK D
SCALE 1:50

GENERAL NOTES : CONCRETE

CONCRETE STRENGTH

(A) FOUNDATIONS.....	30 Mpa cube strength at 28 days
(B) COLUMNS.....	30 Mpa cube strength at 28 days
(C) BEAMS AND SLABS.....	30 Mpa cube strength at 28 days
(D) SURFACE BEDS.....	30 Mpa cube strength at 28 days

CONCRETE COVER TO REINFORCING

(A) SLABS.....	30 mm
(B) BEAMS.....	30 mm
(C) COLUMNS.....	30 mm
(D) SURFACE BEDS.....	30 mm
(E) FOUNDATIONS.....	50 mm

NOTE:
1. BEAM DEPTH INCLUDES SLAB THICKNESS
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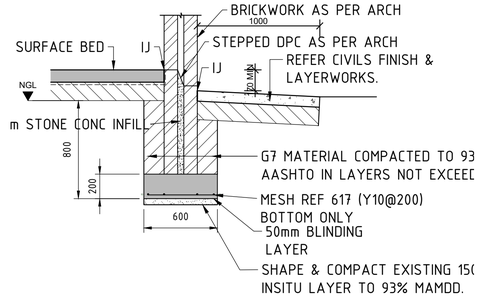
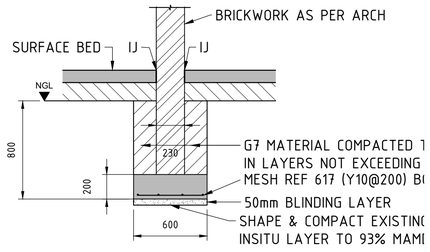
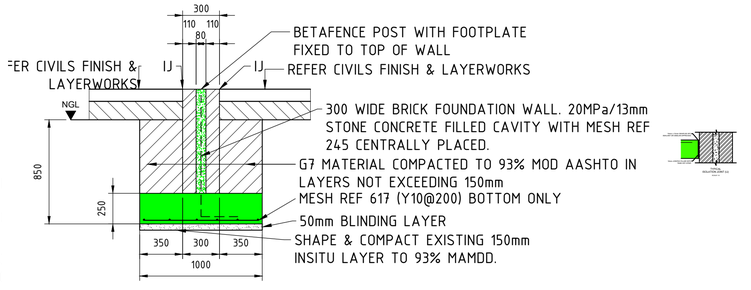


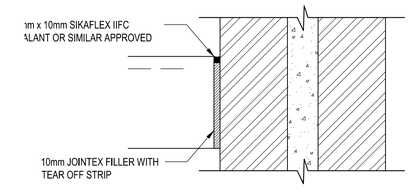
TYPICAL TYPE A SECTION THRU
270mm EXTERNAL WALLS
SCALE 1:25



TYPICAL TYPE B SECTION THRU
230mm INTERNAL WALLS
SCALE 1:25



TYPICAL TYPE D SECTION THRU
300mm FENCE SUPPORT WALLS
SCALE 1:25



TYPICAL ISOLATION JOINT
SCALE 1:5

REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
0	09.02.2024	ISSUED FOR INFORMATION		

DRAWING APPROVED

ENGINEER : .....

PR ENG No. : .....

SIGNATURE : .....

TITLE	NAME
DRAFTER	S.GIRD
DRAFTING CHECK	A.SIBIYA
DESIGNER	S.GIRD
DESIGN CHECK	A.SIBIYA
PROJECT MANAGER	J.KAMPMAN
PROJECT DIRECTOR	J.KAMPMAN

SCALES AT AN A1 SIZE DRAWING

SCALE 1:10 0.1 0 0.1 0.2 0.3 0.4 0.5

SCALE 1:2 0.01 0 0.02 0.04 0.06 0.08 0.1

DESIGNER

SMEC
Member of the Surbana Jurong Group

SMEC PROJECT No EC0027

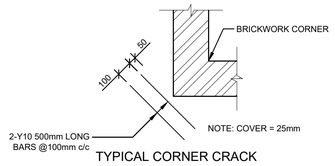
CLIENT

health
Department:
Health
REPUBLIC OF SOUTH AFRICA

EASTERN CAPE DEPARTMENT OF HEALTH
MOTHERWELL CHC
BLOCK D WASTE STORES
SURFACE BED LAYOUT & DETAILS
STRUCTURAL DRAWING

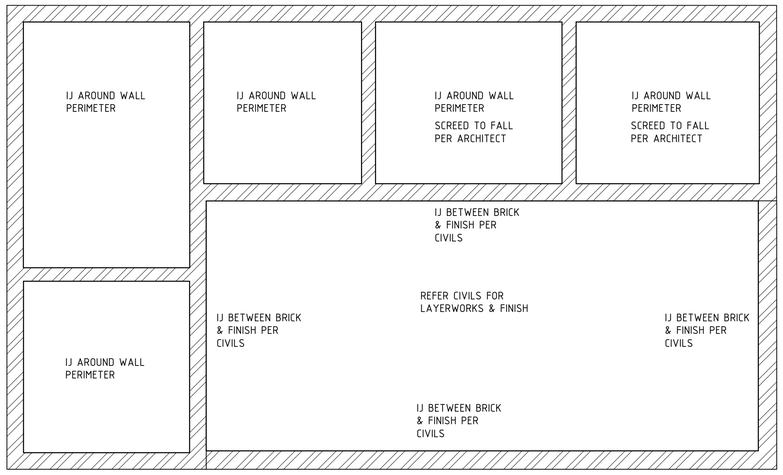
PHASE	DRAWING TYPE	DRAWING NUMBER	REVISION
1	DRW	064	0

PLOT DATE 09 Feb 2024 TIME 19:34:41



TYPICAL CORNER CRACK BAR DETAIL 1

SCALE 1:20

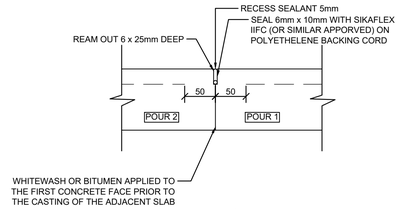


SURFACED BED LAYOUT
BLOCK D

SCALE 1:50

JOINT LEGEND	
IJ	———
SJ/CJ	— · · — · · —

SURFACE BED & RAMPS: 100mm THICK, MESH REF 193 TOP ONLY.



TYPICAL
CONSTRUCTION JOINT (CJ)

SCALE 1:5

GENERAL NOTES : CONCRETE

CONCRETE STRENGTH

(A) FOUNDATIONS.....	30 Mpa cube strength at 28 days
(B) COLUMNS.....	30 Mpa cube strength at 28 days
(C) BEAMS AND SLABS.....	30 Mpa cube strength at 28 days
(D) SURFACE BEDS.....	30 Mpa cube strength at 28 days

CONCRETE COVER TO REINFORCING

(A) SLABS.....	30 mm
(B) BEAMS.....	30 mm
(C) COLUMNS.....	30 mm
(D) SURFACE BEDS.....	30 mm
(E) FOUNDATIONS.....	50 mm

NOTE:

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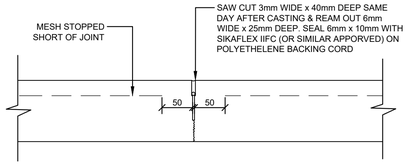
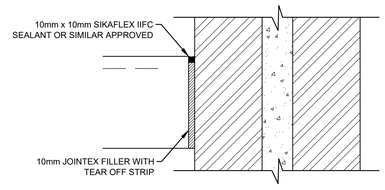


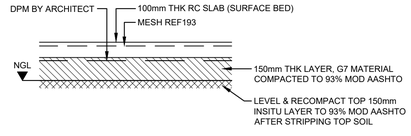
TYPICAL
SAW CUT
CONTRACTION JOINT (SJ)

SCALE 1:5



TYPICAL
ISOLATION JOINT (IJ)

SCALE 1:5



TYPICAL SURFACE BED LAYER WORKS

SCALE 1:20

DRAWING FILE LOCATION / NAME

REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
0	09.02.2024	ISSUED FOR INFORMATION		

DRAWING APPROVED

ENGINEER : .....

PR ENG No. : .....

SIGNATURE : .....

TITLE	NAME
DRAFTER	S.GIRD
DRAFTING CHECK	A.SIBIYA
DESIGNER	S.GIRD
DESIGN CHECK	A.SIBIYA
PROJECT MANAGER	J.KAMPMAN
PROJECT DIRECTOR	J.KAMPMAN

SCALES AT AN A1 SIZE DRAWING

SCALE 1:10 0.1 0 0.1 0.2 0.3 0.4 0.5

SCALE 1:2 0.01 0 0.02 0.04 0.06 0.08 0.1

DESIGNER

SMEC
Member of the Surbana Jurong Group

SMEC PROJECT No EC0027

CLIENT

health
Department: Health
REPUBLIC OF SOUTH AFRICA

EASTERN CAPE DEPARTMENT OF HEALTH

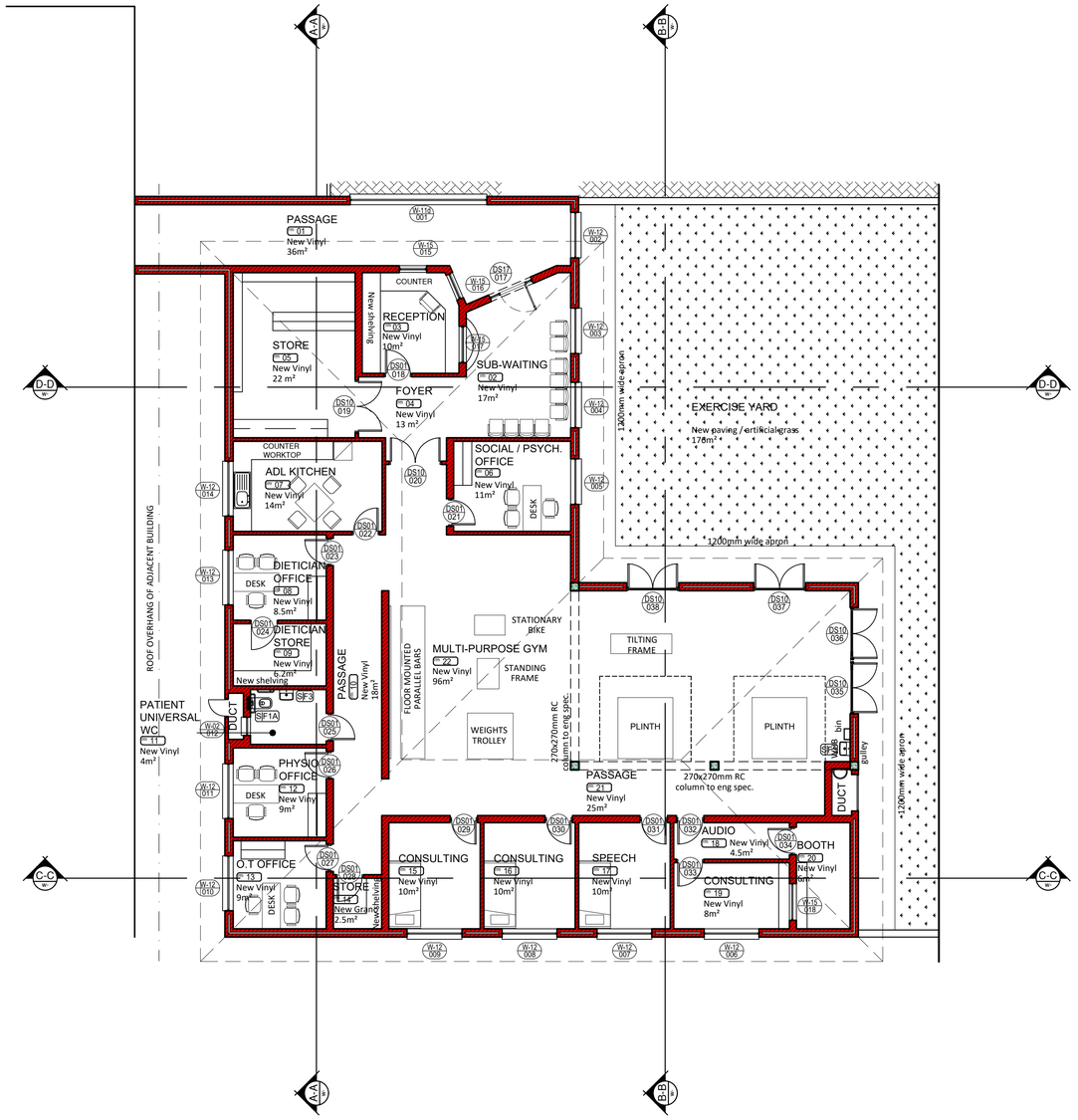
MOTHERWELL CHC

BLOCK D WASTE STORE

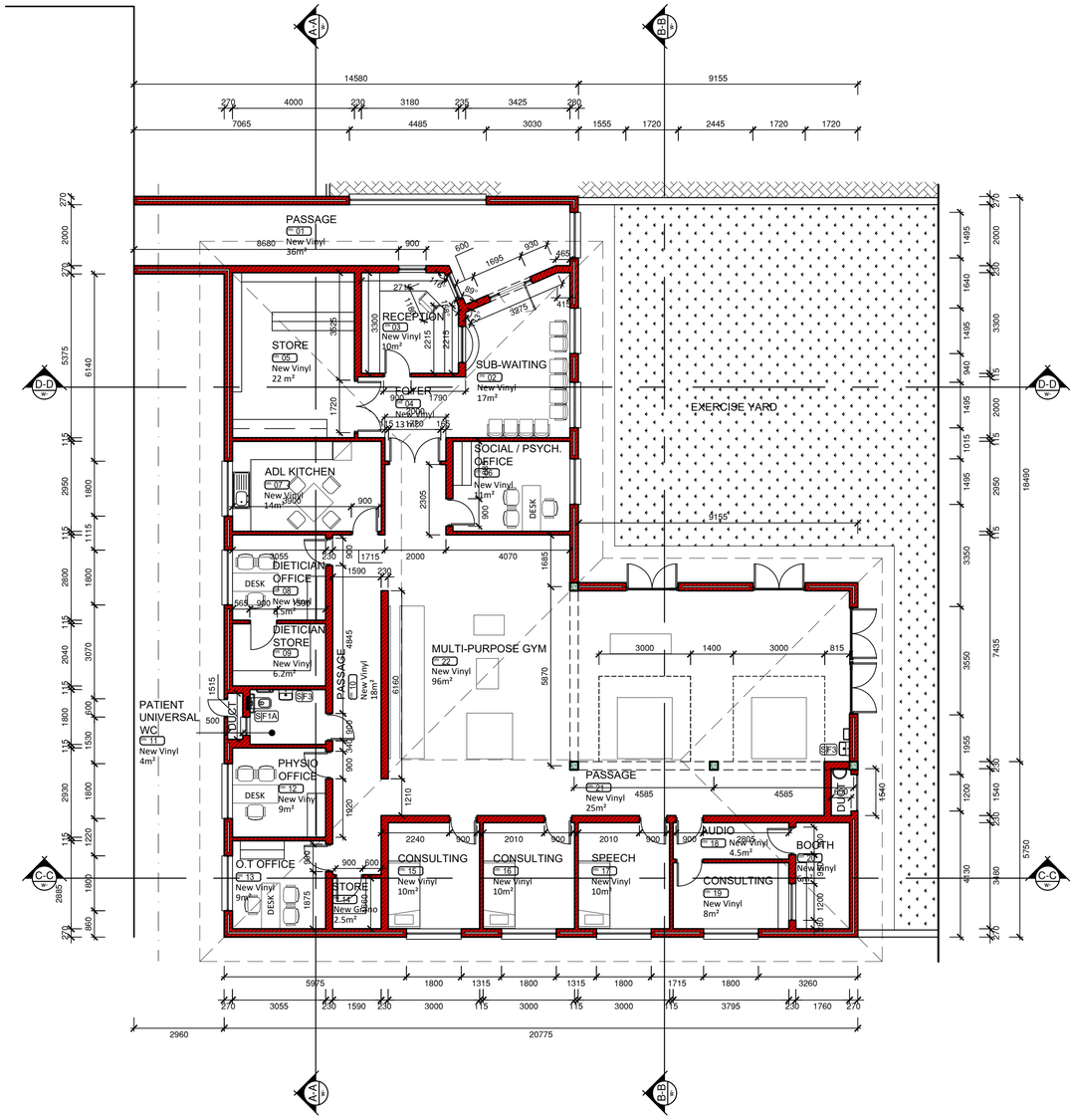
FOUNDATION LAYOUT

STRUCTURAL DRAWING

PHASE	DRAWING TYPE	DRAWING NUMBER	REVISION
1	DRW	065	0



BLOCK E - KEY PLAN
SCALE 1:100



BLOCK E - DIMENSION PLAN
SCALE 1:100

general notes

SITE KEY

CAD
X:\BNM_Architect\3001-3500\3201-3300\3239_Motherwell CHC

notes
The contractor is to verify all dimensions on site before commencing any part of the work. Errors, discrepancies or omissions are to be reported for clarification.

revisions

date	rev	description
-	-	-

structural engineer
mechanical engineer
electrical engineer

BNM ARCHITECTS PROJECT MANAGERS
Brinkman Ndayi McAll (Pty) Ltd reg no. 2020/775519/07
tel +27 41 585 2125
fax +27 41 585 2127
email bnmpe@bnm.co.za
address suite 1 lyndon, 114 park drive, central, pe, 6001
postal address po box 12376, centrahil, port elizabeth, 6006

client
Province of the EASTERN CAPE HEALTH

project number
BNM REF: 3239

drawing name
REHAB
PROPOSAL
DIMENSION & KEY PLAN

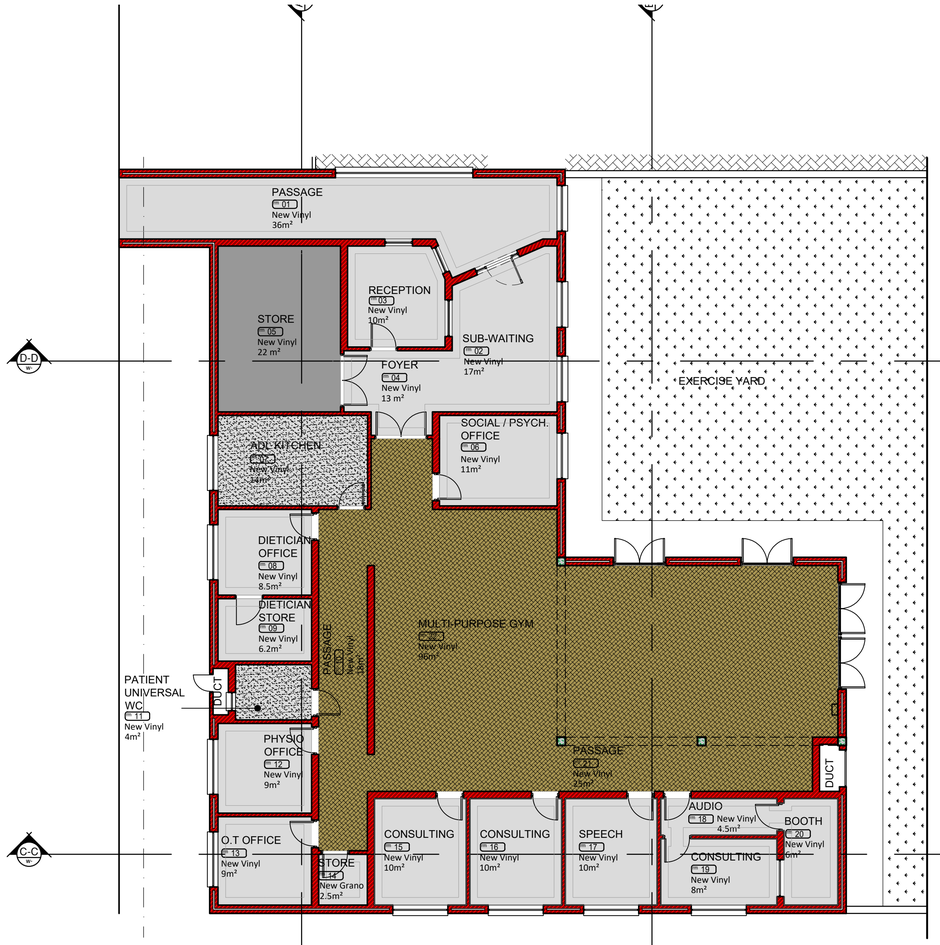
project details
SCMU3-22/23-0122-HO:
MOTHERWELL CHC

drawing number
3239_E_200

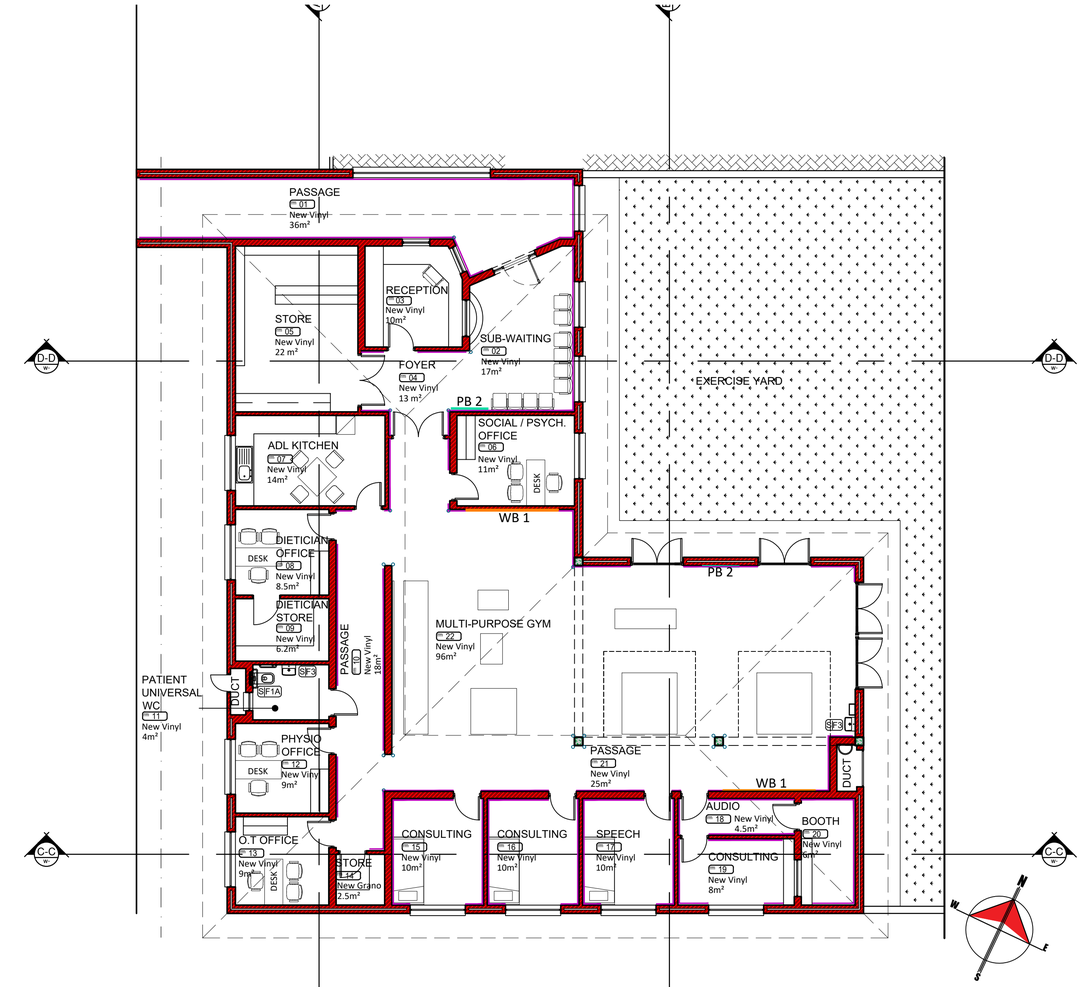
revision

drawn	checked	scale	date
M.S	A.SWART SACAP 7061 PROF. ARCH.	1:100	26-10-2023

registered owner signature
architects signature



BLOCK E - FLOOR FINISH PLAN
SCALE 1:100



BLOCK E - FURNITURE PLAN
SCALE 1:100

FLOOR FINISH KEY:

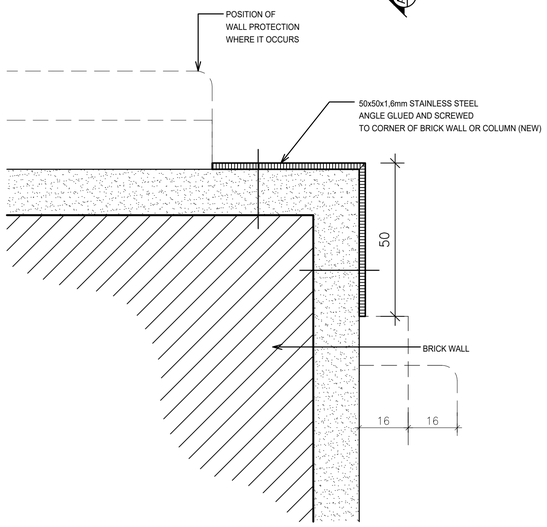
- ECOsurface: 3,2mm Thick recycled tire rubber flooring with EPDM multi-coloured flecks, colour: Moonrock. Install as per approved manufaturer's specification. Sealed after installation.
- MARMOLEUM: light grey
- MARMOLEUM: dark grey
- POLYSAFE: safety flooring
- Easigrass EASI-PLAY artificial grass surface, laid on compacted / condensed platform surface with 30mm sand blinding layer, fixed to edges on 38x38 timber surround frame as per manufacturers specification
- PAVING: grey
- GRAVEL

FURNITURE LAYOUT LEGEND:

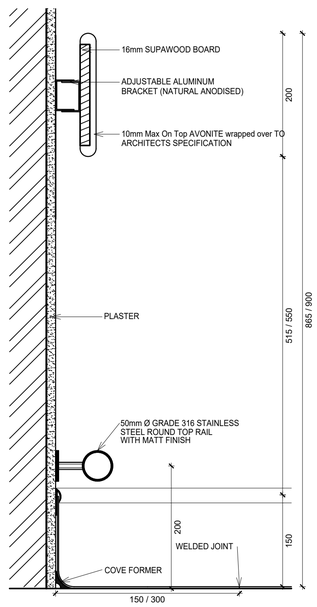
	Bump rail position along walls.
	Corner protection positions on walls.

ACCESSORIES LEGEND:

WB 1	1200 X 2400mm White Board magnetically receptive steel surface, aluminum and plastic frame, wall mounted.
WB 2	1200 X 900mm White Board magnetically receptive steel surface, aluminum and plastic frame, wall mounted.
PB 1	1200 X 2400mm felt surface pinning board with aluminum and plastic frame, wall mounted. Colour: grey
PB 2	1200 X 900mm felt surface pinning board with aluminum and plastic frame, wall mounted. Colour: grey
DC 1	1200X900mm wall mounted pinning board display case with aluminum frame and plastic corners, 4mm toughened glass sliding doors, lockable
DC 2	900X600mm wall mounted pinning board display case with aluminum frame and plastic corners, 4mm toughened glass hinged door, lockable.
PS 1	2100X1600mm 4:3 pull down projector screen



BLOCK E - CORNER PROTECTION DETAIL
SCALE 1:1



BLOCK E -SKIRTING AND BUMP RAIL DETAIL
SCALE 1:5

general notes

SITE KEY

CAD
X:\BNM_Architect\3001-3500\3201-3300\3239_Motherwell CHC

notes
The contractor is to verify all dimensions on site before commencing any part of the work. Errors, discrepancies or omissions are to be reported for clarification.

revisions

date	rev	description
-	-	-

structural engineer
mechanical engineer
electrical engineer

BNM ARCHITECTS PROJECT MANAGERS
Brinkman Ndayi McAll (Pty) Ltd reg no. 2020/775519/07
tel +27 41 585 2125
fax +27 41 585 2127
email bnmpe@bnm.co.za
address / postal address: suite 1 lyndon, 114 park drive, central, pe, 6001 / po box 12376, centrahil, port elizabeth, 6006

client
Province of the EASTERN CAPE HEALTH

project number
BNM REF: 3239

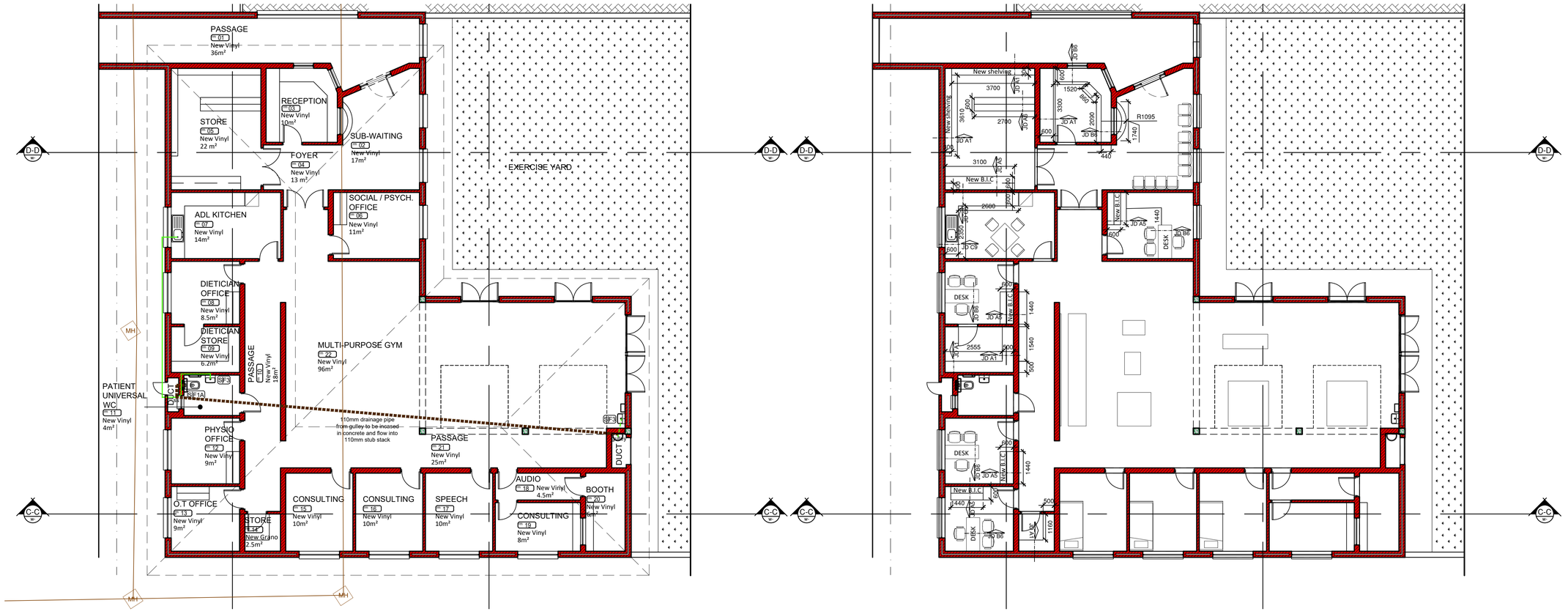
drawing name
REHAB
PROPOSAL
FLOOR FINISH & FURNITURE PLAN

project details
SCMU3-22/23-0122-HO:
MOTHERWELL CHC

drawing number: 3239_E_201
revision:

drawn	checked	scale	date
M.S	A.SWART SACAP 7061 PROF. ARCH.	1:100	26-10-2023

registered owner signature
architects signature



SEWER LAYOUT LEGEND:

40 upvc waste pipe underneath slab to ss into ground	
40 upvc waste pipe in wall above slab to ss	
50 upvc waste pipe underneath slab to ss into ground	
50 upvc waste pipe in wall above slab to ss	
100 upvc soil pipe underneath slab to ss into ground	
ss	
110 Ø Vent Pipe	Ø110 VP
Manhole and Sewage line	MH

BLOCK E - SANITARY PLAN
SCALE 1:100

BLOCK E - JOINERY PLAN
SCALE 1:100

general notes

SITE KEY

CAD
X:\BNM_Architect\3001-3500\3201-3300\3239_Motherwell CHC

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revisions

date	rev	description
-	-	-

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mechanical engineer
electrical engineer

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address suite 1 lyndon, 114 park drive, central, pe, 6001
postal address po box 12376, centrahil, port elizabeth, 6006

client
Province of the EASTERN CAPE HEALTH

project number
BNM REF: 3239

drawing name
REHAB
PROPOSAL
SANITARY & JOINERY PLAN

project details
SCMU3-22/23-0122-HO:
MOTHERWELL CHC

drawing number: 3239_E_202
revision:

drawn	checked	scale	date
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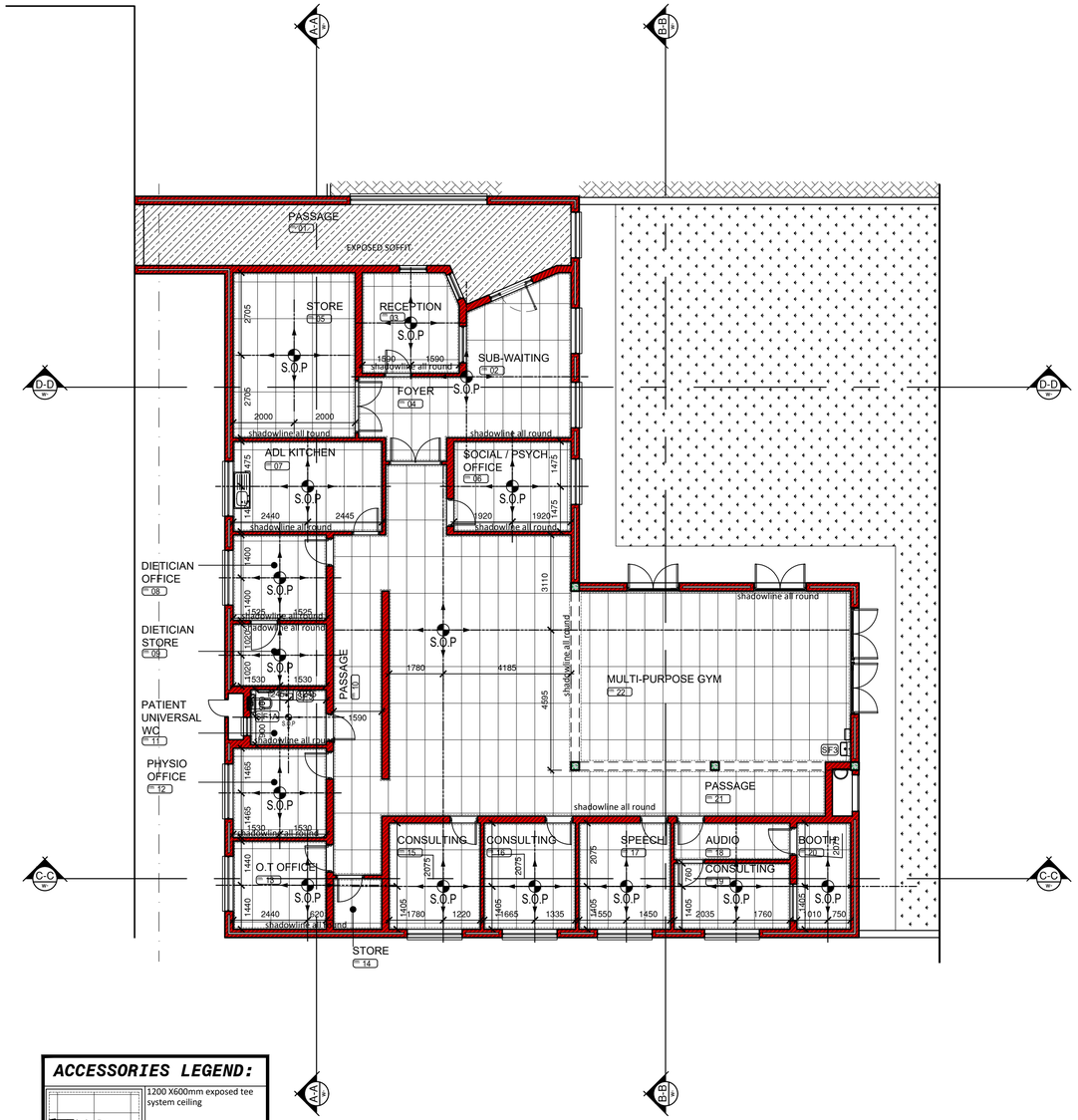
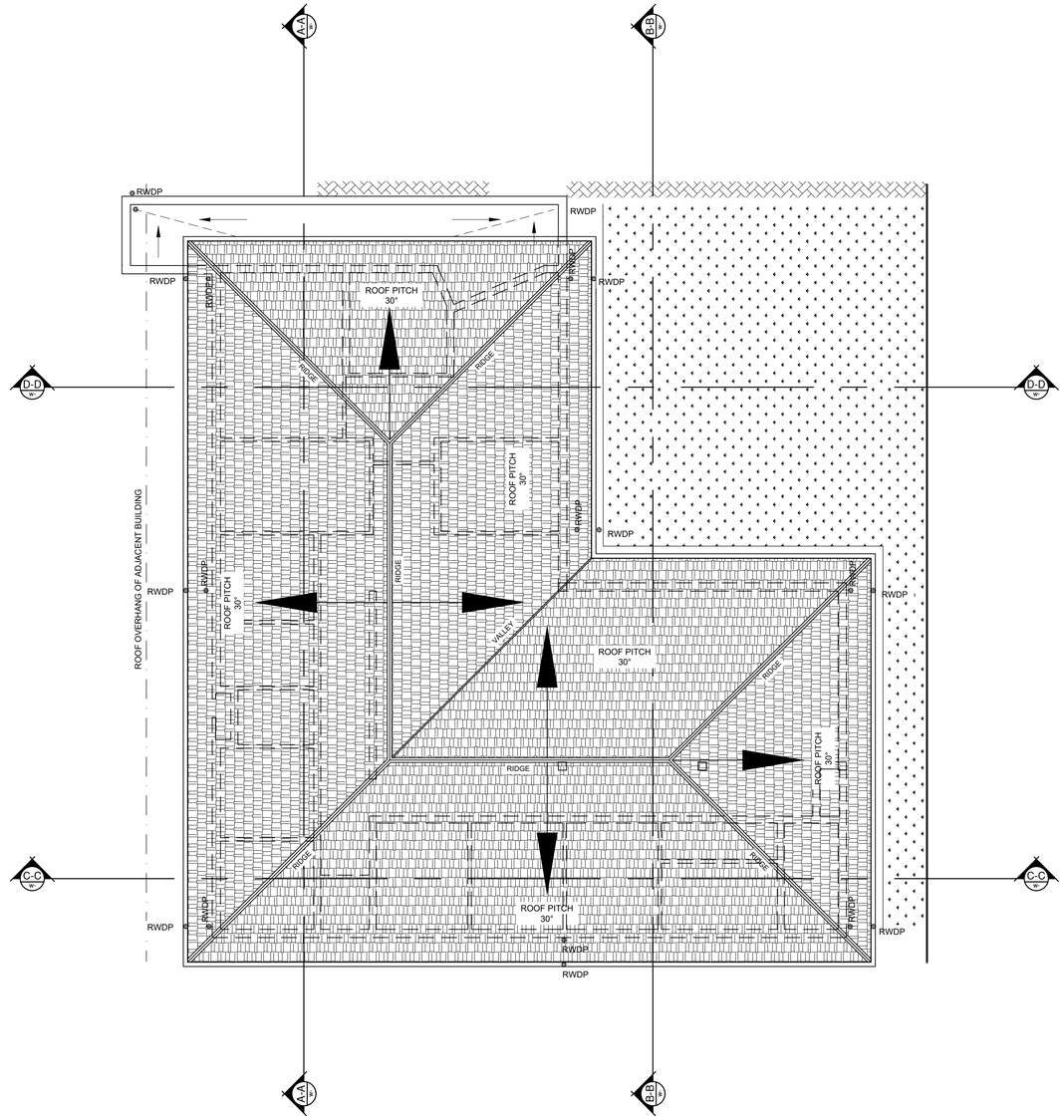
registered owner signature
architects signature





ACCESSORIES LEGEND:

shadow line	1200 X600mm exposed tee system ceiling
shadow line	600 x 600mm exposed tee system ceiling
shadow line	9.5mm Thick Fibre Cement board fixed to suspended ceiling frame and 40x12mm timber cover strip to all joints and edges.
shadow line	9.5mm Thick Fibre Cement boards fixed to supended ceiling frame, all skimmed. with 40x12mm timber cover strip to all edges / cornices.
	skim coated exposed soffit

BLOCK E - FLOOR FINISH PLAN
SCALE 1:200

BLOCK E - ROOF PLAN
SCALE 1:200

general notes

SITE KEY

CAD
X:\BNM_Architect\3001-3500\3201-3300\3239_Motherwell CHC

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revisions

date	rev	description
-	-	-

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address suite 1 lyndon, 114 park drive, central, pe, 6001
postal address po box 12376, centrahil, port elizabeth, 6006

client
Province of the EASTERN CAPE HEALTH

project number
BNM REF: 3239

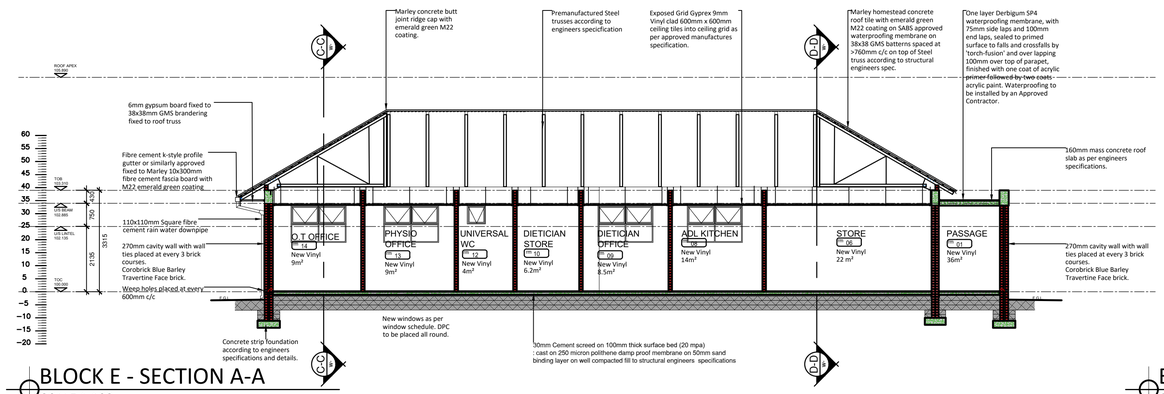
drawing name
REHAB
PROPOSAL
CEILING & ROOF PLAN

project details
SCMU3-22/23-0122-HO:
MOTHERWELL CHC

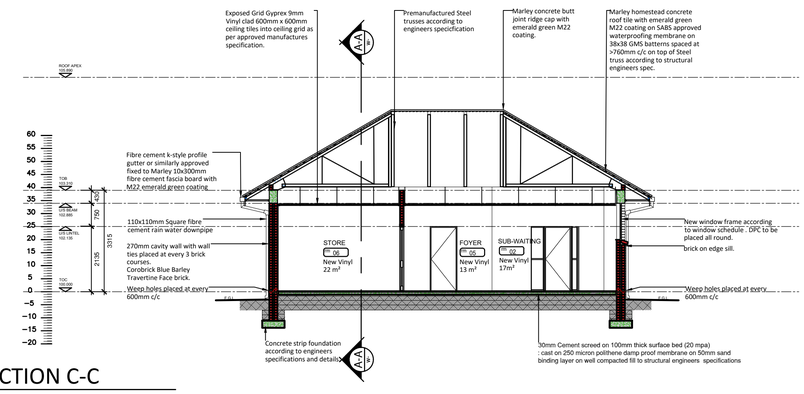
drawing number 3239_E_203
revision

drawn	checked	scale	date
M.S	A.SWART SACAP 7061 PROF. ARCH.	1:100	26-10-2023

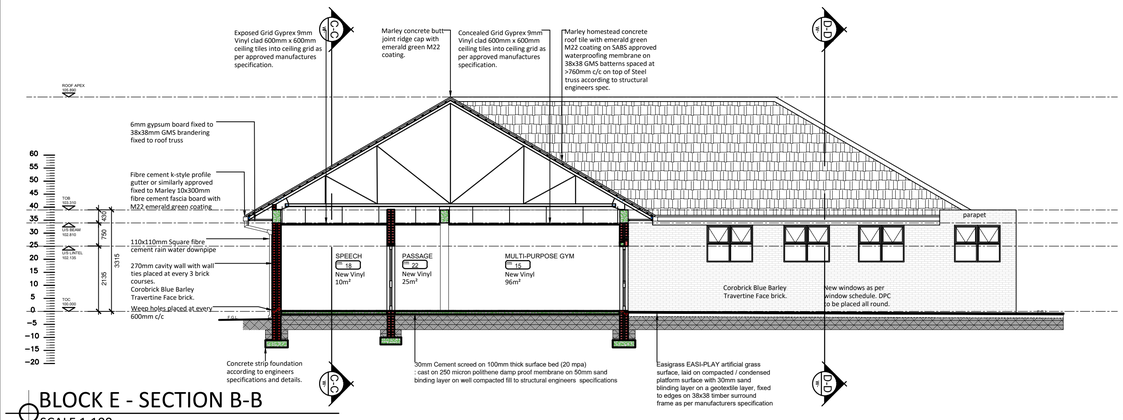
registered owner signature
architects signature



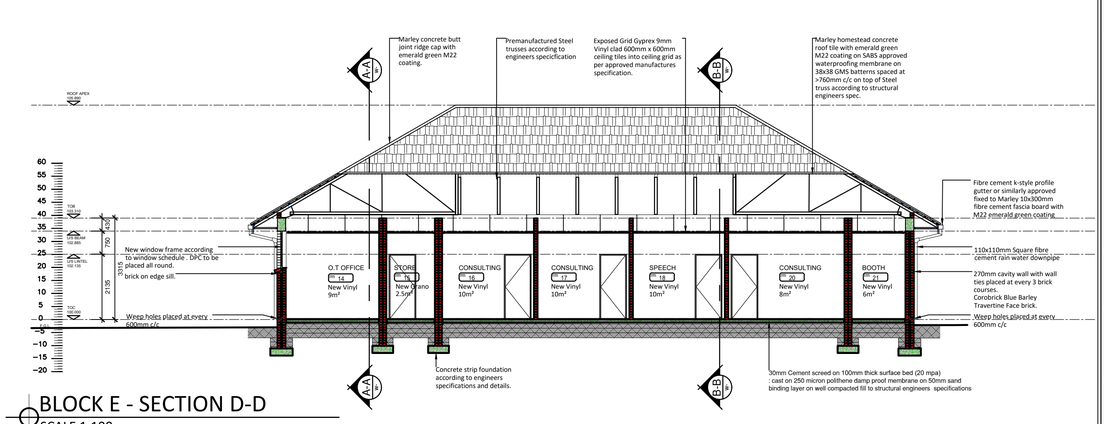
BLOCK E - SECTION A-A
SCALE 1:100



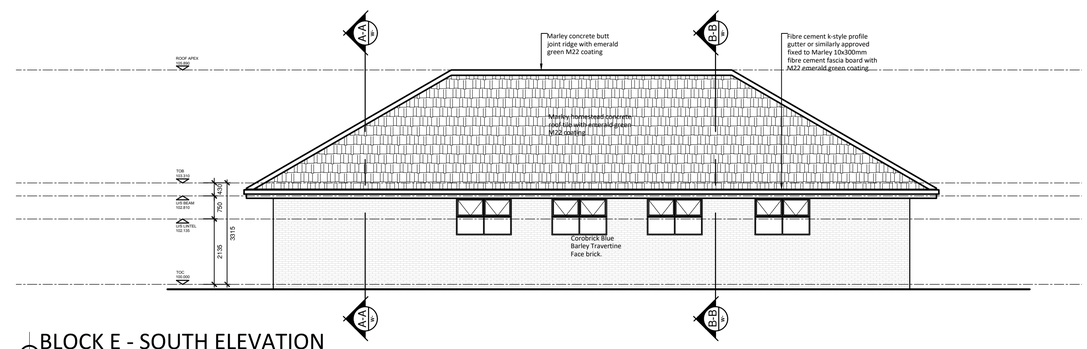
BLOCK E - SECTION C-C
SCALE 1:100



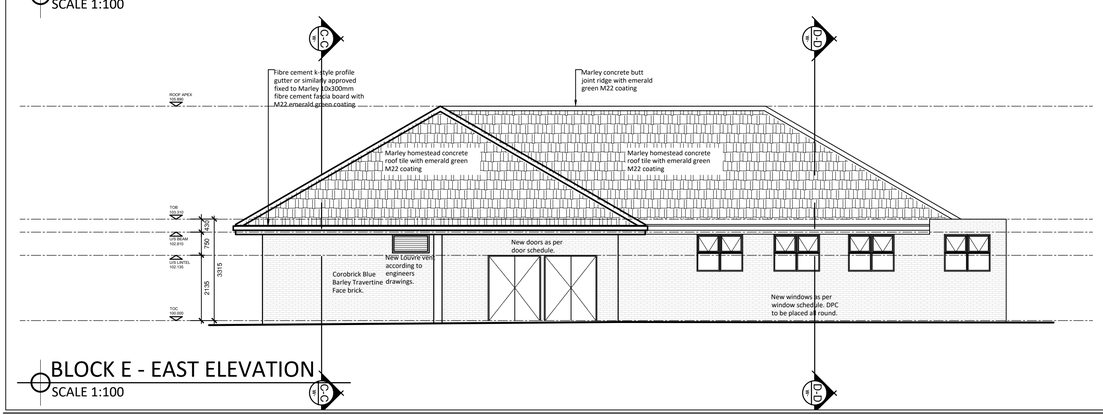
BLOCK E - SECTION B-B
SCALE 1:100



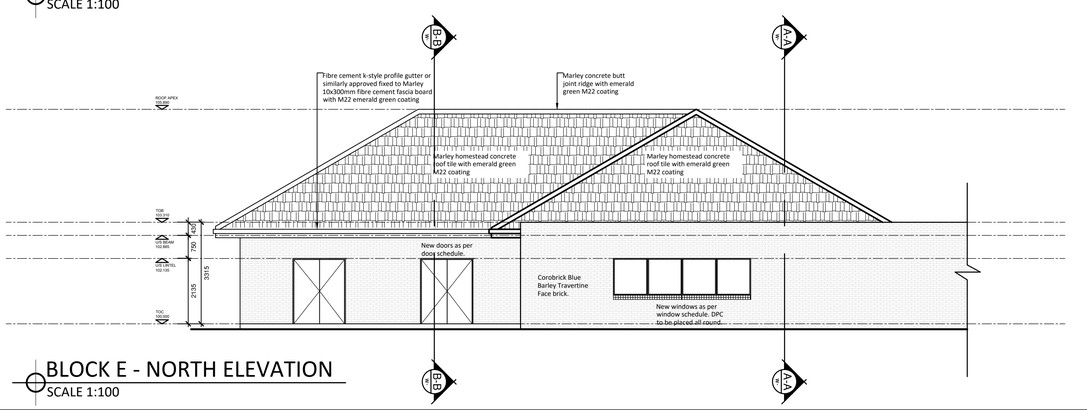
BLOCK E - SECTION D-D
SCALE 1:100



BLOCK E - SOUTH ELEVATION
SCALE 1:100



BLOCK E - EAST ELEVATION
SCALE 1:100



BLOCK E - NORTH ELEVATION
SCALE 1:100

general notes

SITE KEY

CAD
X:\BNM_Architect\3001-3500\3201-3300\3239_Motherwell CHC

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-	-	-

structural engineer
mechanical engineer
electrical engineer

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client
Province of the EASTERN CAPE HEALTH

project number
BNM REF: 3239

drawing name
REHAB
PROPOSAL
SECTIONS & ELEVATIONS

project details
SCMU3-22/23-0122-HO:
MOTHERWELL CHC

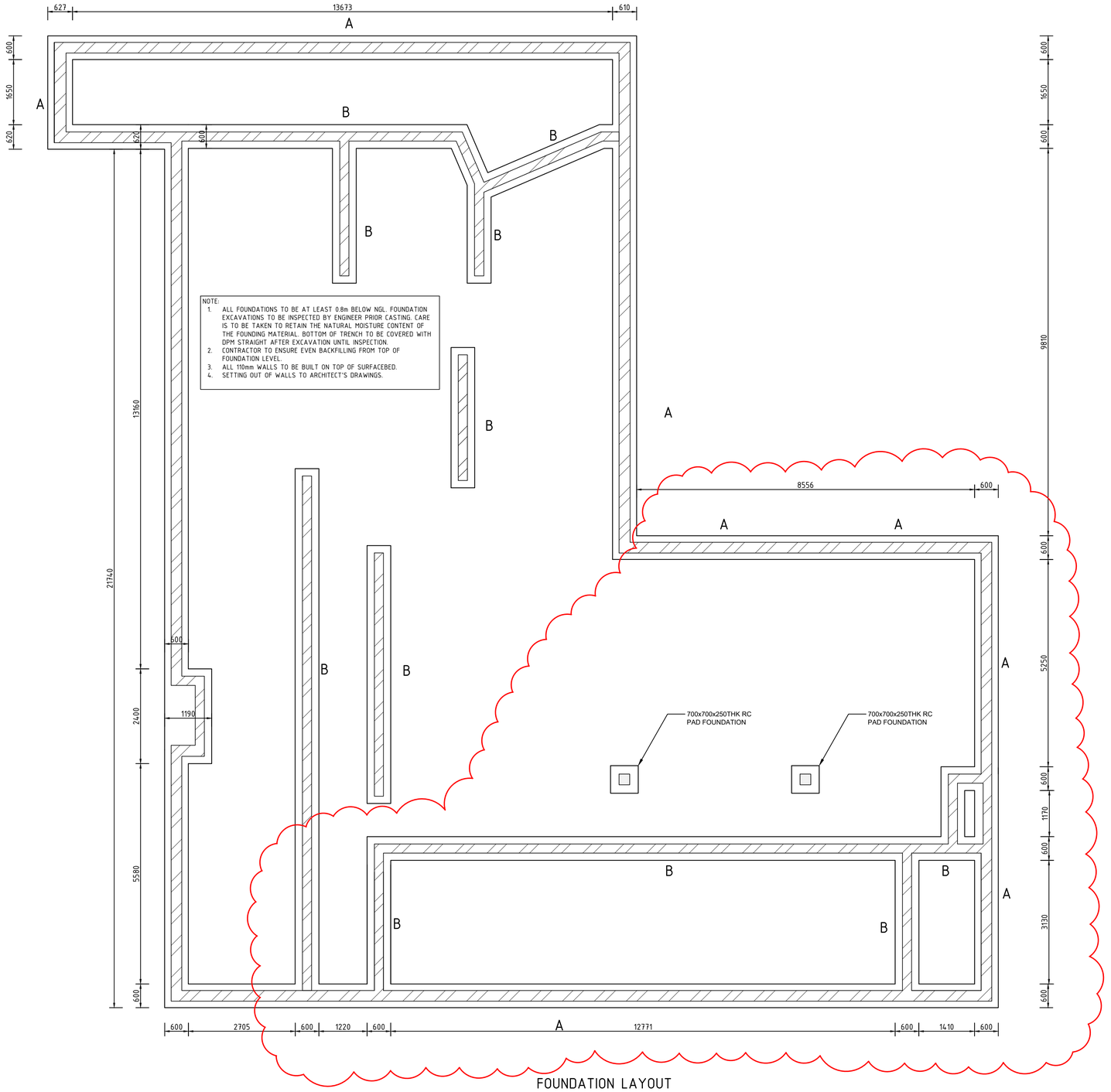
drawing number
3239_E_300

revision

drawn	checked	scale	date
M.S	A.SWART SACAP 7061 PROF. ARCH.	1:100	26-10-2023

registered owner signature
architects signature

PLOT DATE 20 Feb 2024 TIME 16:31:56



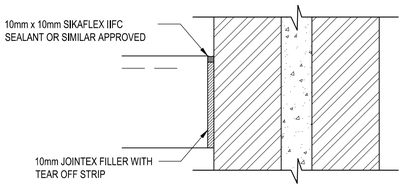
NOTE:
1. ALL FOUNDATIONS TO BE AT LEAST 0.8m BELOW NGL. FOUNDATION EXCAVATIONS TO BE INSPECTED BY ENGINEER PRIOR CASTING. CARE IS TO BE TAKEN TO RETAIN THE NATURAL MOISTURE CONTENT OF THE FOUNDING MATERIAL. BOTTOM OF TRENCH TO BE COVERED WITH DPM STRAIGHT AFTER EXCAVATION UNTIL INSPECTION.
2. CONTRACTOR TO ENSURE EVEN BACKFILLING FROM TOP OF FOUNDATION LEVEL.
3. ALL 110mm WALLS TO BE BUILT ON TOP OF SURFACEBED.
4. SETTING OUT OF WALLS TO ARCHITECT'S DRAWINGS.

FOUNDATION LAYOUT
BLOCK E
SCALE 1:50

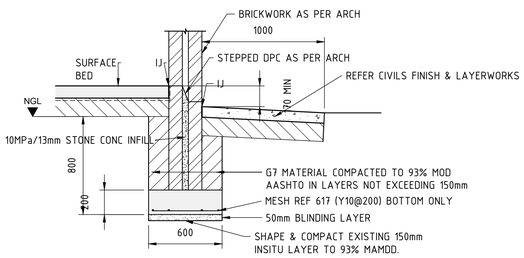
GENERAL NOTES : CONCRETE

CONCRETE STRENGTH	
(A) FOUNDATIONS.....	30 Mpa cube strength at 28 days
(B) COLUMNS.....	30 Mpa cube strength at 28 days
(C) BEAMS AND SLABS.....	30 Mpa cube strength at 28 days
(D) SURFACE BEDS.....	30 Mpa cube strength at 28 days
CONCRETE COVER TO REINFORCING	
(A) SLABS.....	30 mm
(B) BEAMS.....	30 mm
(C) COLUMNS.....	30 mm
(D) SURFACE BEDS.....	30 mm
(E) FOUNDATIONS.....	50 mm

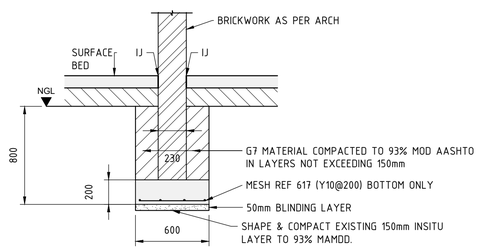
NOTE:
1. BEAM DEPTH INCLUDES SLAB THICKNESS
2. CONTRACTOR IS TO MAINTAIN STEEL IN CORRECT POSITION AFTER PLACING AND DURING CONCRETING
3. STONE, SAND AND CEMENT TO BE TO THE SATISFACTION OF THE CONSULTING ENGINEER.
4. NO CONCRETE TO BE POURED UNTIL THE STEEL HAS BEEN INSPECTED BY THE CONSULTING ENGINEER.
5. ANY BREAKS IN THE CONCRETE ARE TO BE MADE IN ACCORDANCE WITH THE ENGINEERS INSTRUCTIONS.
6. NO STRUCTURAL ALTERATIONS TO BE MADE WITHOUT THE APPROVAL OF THE CONSULTING ENGINEER.
7. THE STRUCTURE HAS BEEN DESIGNED FOR THE FOLLOWING CONDITIONS:
   (A) SAFE GROUND PRESSURE..... 100 kN/sq m
   (B) LIVE LOAD ON SLAB..... 1.5 kN/sq m
8. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL AND THE CIVIL ENGINEERING DRAWINGS.
9. THE DESIGN ON THIS DRAWING REMAINS THE PROPERTY OF LUKHOZI CONSULTING ENGINEERS - COPYRIGHT IS RESERVED.
10. ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE WORK IS PUT IN HAND. ANY DISCREPANCY MUST IMMEDIATELY BE
11. REPORTED TO THE ENGINEER.
12. THIS DRAWING IS NOT TO BE SCALED.



TYPICAL ISOLATION JOINT
SCALE 1:5



TYPICAL TYPE A SECTION THRU
270mm INTERNAL WALLS
SCALE 1:25



TYPICAL TYPE B SECTION THRU
230mm INTERNAL WALLS
SCALE 1:25

REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
A	09/02/2024	ISSUED FOR INFORMATION		
B	20/02/2024	VERANDA AND INTERNAL WALLS ADJUSTED		

DRAWING APPROVED

ENGINEER : .....

PR ENG No. : .....

SIGNATURE : .....

TITLE	NAME
DRAFTER	S.GIRD
DRAFTING CHECK	A.SIBIYA
DESIGNER	S.GIRD
DESIGN CHECK	A.SIBIYA
PROJECT MANAGER	J.KAMPMAN
PROJECT DIRECTOR	J.KAMPMAN

SCALES AT AN A1 SIZE DRAWING
SCALE 1:10 0.1 0 0.1 0.2 0.3 0.4 0.5
SCALE 1:2 0.01 0 0.02 0.04 0.06 0.08 0.1

DESIGNER
SMEC
Member of the Surbana Jurong Group
SMEC PROJECT No EC0027

CLIENT
health
Department:
Health
REPUBLIC OF SOUTH AFRICA

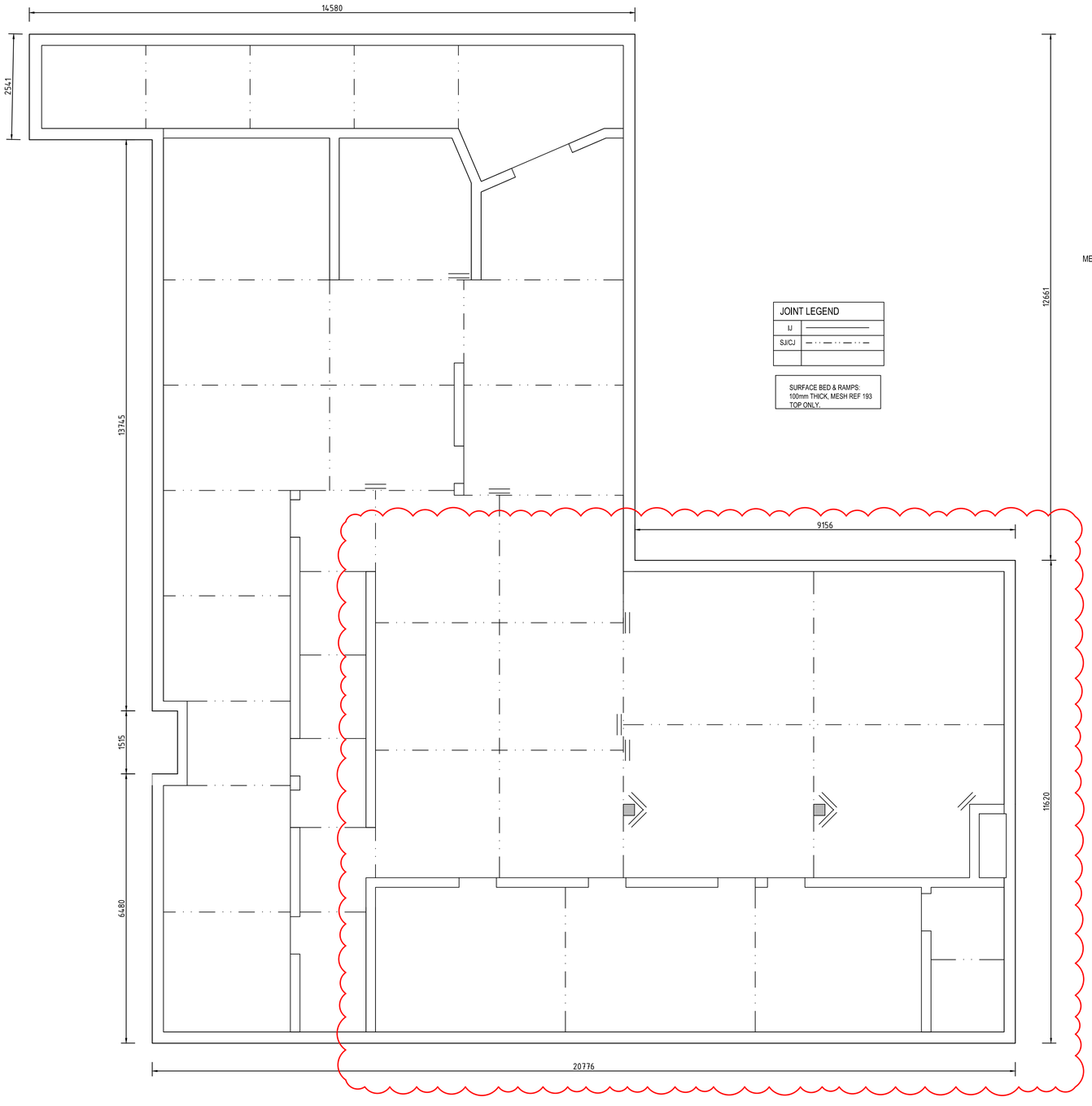
EASTERN CAPE DEPARTMENT OF HEALTH
MOTHERWELL CHC
BLOCK E 8-5 REHAB FACILITY
SURFACE BED LAYOUT & DETAILS
STRUCTURAL DRAWING

PHASE	DRAWING TYPE	DRAWING NUMBER	REVISION
1	DRW	066	B

DRAWING FILE LOCATION / NAME

150 mm ON ORIGINAL A1

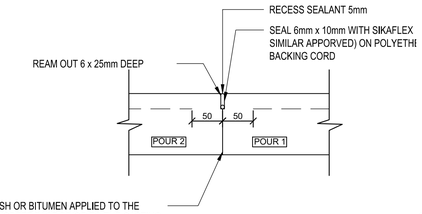
PLOT DATE 20 Feb 2024
TIME 16:33:16



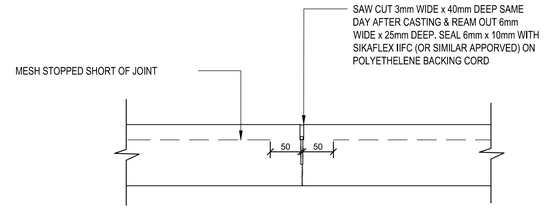
SURFACEBED LAYOUT
BLOCK E
SCALE 1:50

JOINT LEGEND	
IJ	———
SJ/CJ	- · - · - · -

SURFACE BED & RAMPS:
100mm THICK, MESH REF 193
TOP ONLY.



TYPICAL CONSTRUCTION JOINT (CJ)
SCALE 1:5



TYPICAL SAW CUT
CONTRACTION JOIN (SJ)
SCALE 1:5

GENERAL NOTES : CONCRETE

CONCRETE STRENGTH

(A) FOUNDATIONS.....	30 Mpa cube strength at 28 days
(B) COLUMNS.....	30 Mpa cube strength at 28 days
(C) BEAMS AND SLABS.....	30 Mpa cube strength at 28 days
(D) SURFACE BEDS.....	30 Mpa cube strength at 28 days

CONCRETE COVER TO REINFORCING

(A) SLABS.....	30 mm
(B) BEAMS.....	30 mm
(C) COLUMNS.....	30 mm
(D) SURFACE BEDS.....	30 mm
(E) FOUNDATIONS.....	50 mm

NOTE:

1. BEAM DEPTH INCLUDES SLAB THICKNESS
2. CONTRACTOR IS TO MAINTAIN STEEL IN CORRECT POSITION AFTER PLACING AND DURING CONCRETING
3. STONE, SAND AND CEMENT TO BE TO THE SATISFACTION OF THE CONSULTING ENGINEER.
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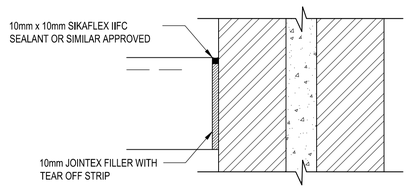
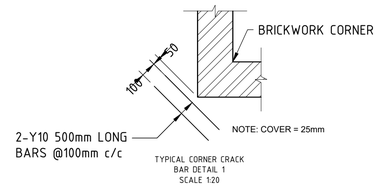
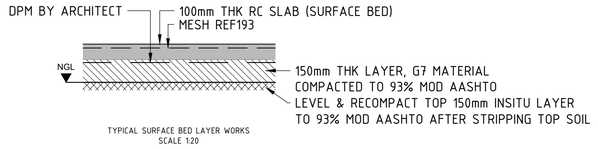


TYPICAL ISOLATION JOINT
SCALE 1:5



TYPICAL CORNER CRACK
BAR DETAIL 1
SCALE 1:20



TYPICAL SURFACE BED LAYER WORKS
SCALE 1:20

REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
A	23/05/2023	ISSUED FOR INFORMATION		
B	20/02/2024	VERANDA AND INTERNAL WALLS ADJUSTED		

DRAWING APPROVED
ENGINEER : .....
PR ENG No. : .....
SIGNATURE : .....

TITLE	NAME
DRAFTER	S.GIRD
DRAFTING CHECK	A.SIBIYA
DESIGNER	S.GIRD
DESIGN CHECK	A.SIBIYA
PROJECT MANAGER	J.KAMPMAN
PROJECT DIRECTOR	J.KAMPMAN

SCALES AT AN A1 SIZE DRAWING
SCALE 1:10 0.1 0 0.1 0.2 0.3 0.4 0.5
SCALE 1:2 0.01 0 0.02 0.04 0.06 0.08 0.1

DESIGNER
SMEC
Member of the Surbana Jurong Group
SMEC PROJECT No EC0027

CLIENT
health
Department: Health
REPUBLIC OF SOUTH AFRICA

EASTERN CAPE DEPARTMENT OF HEALTH

MOTHERWELL CHC
BLOCK E
8-5 REHAB FACILITY FOUNDATION LAYOUT
STRUCTURAL DRAWING

PHASE	DRAWING TYPE	DRAWING NUMBER	REVISION
1	DRW	067	B

DRAWING FILE LOCATION / NAME

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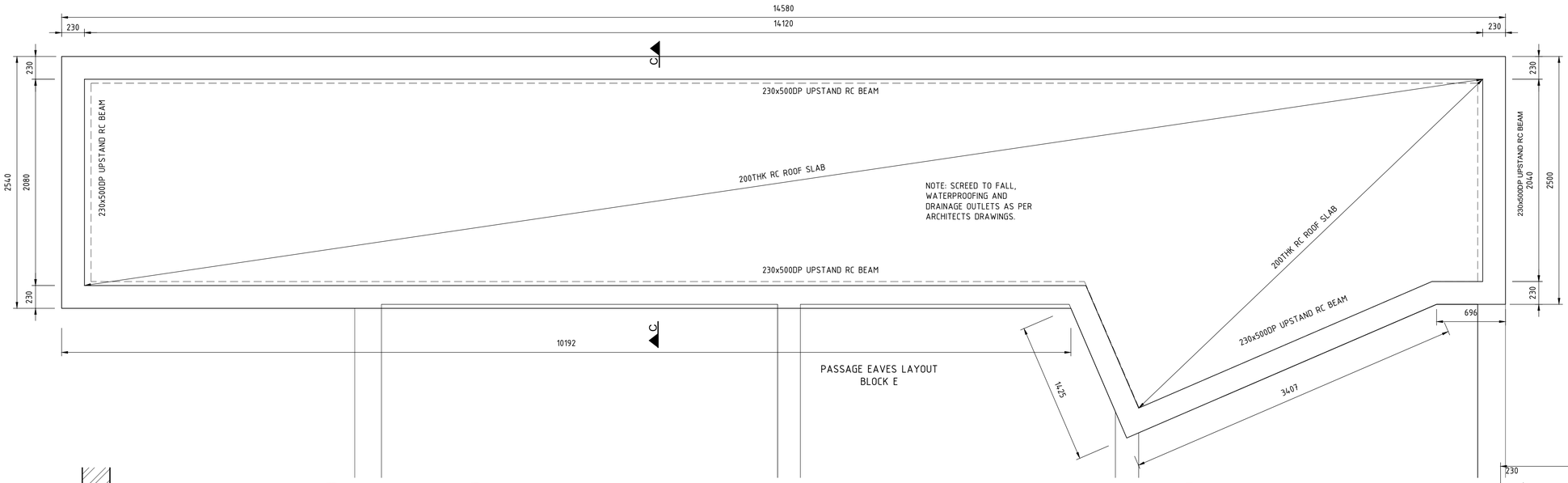
PLOT DATE 20 Feb 2024 TIME 16:29:17



PASSAGE EAVES LAYOUT
BLOCK E

GENERAL NOTES : CONCRETE

CONCRETE STRENGTH	
(A) FOUNDATIONS.....	30 Mpa cube strength at 28 days
(B) COLUMNS.....	30 Mpa cube strength at 28 days
(C) BEAMS AND SLABS.....	30 Mpa cube strength at 28 days
(D) SURFACE BEDS.....	30 Mpa cube strength at 28 days
CONCRETE COVER TO REINFORCING	
(A) SLABS.....	30 mm
(B) BEAMS.....	30 mm
(C) COLUMNS.....	30 mm
(D) SURFACE BEDS.....	30 mm
(E) FOUNDATIONS.....	50 mm

NOTE:
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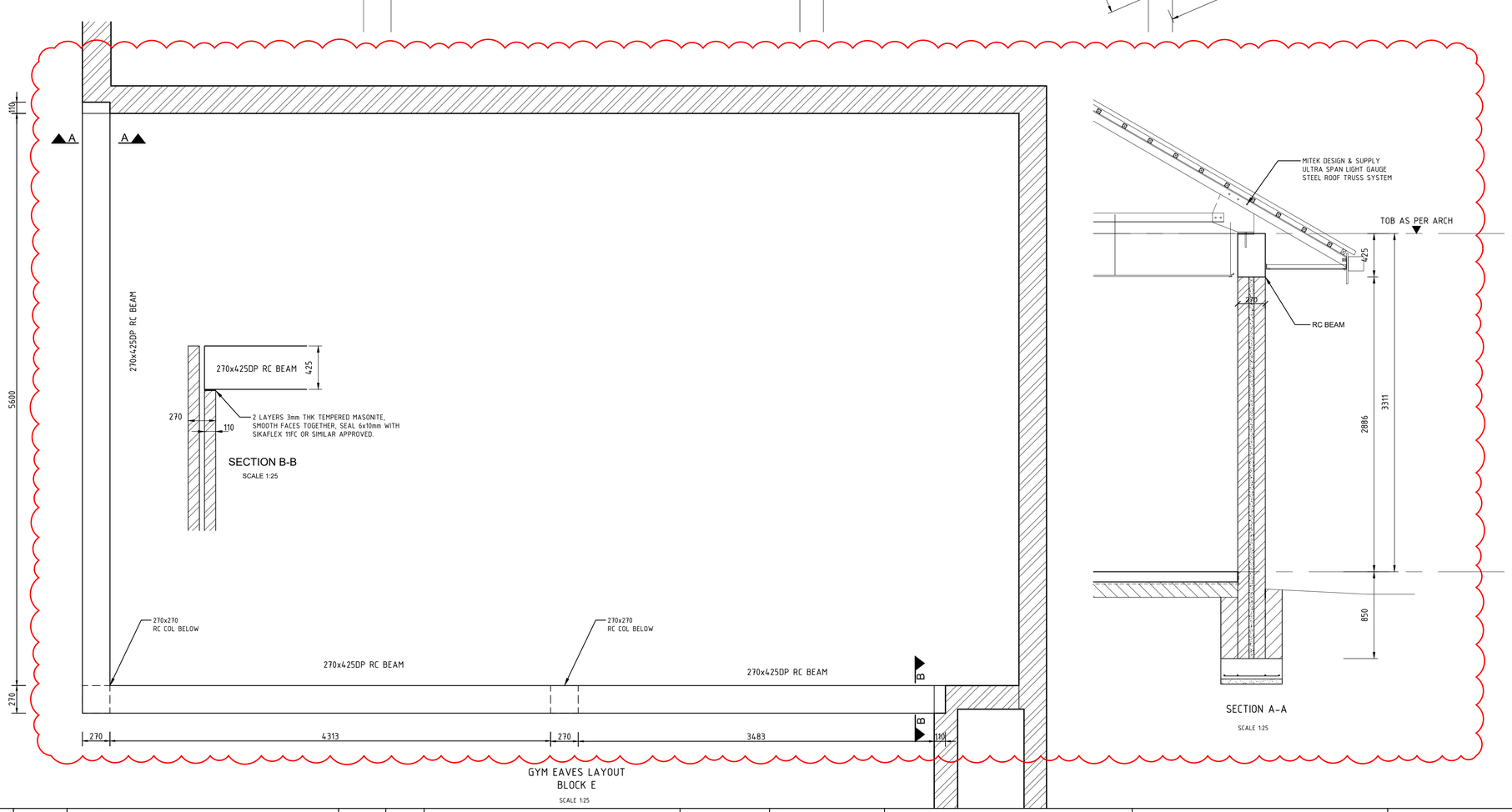
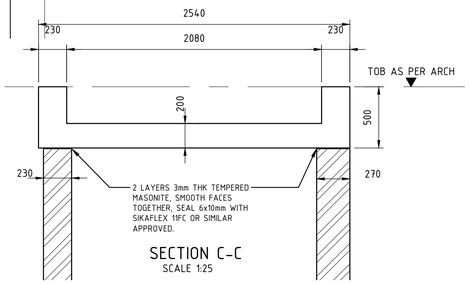


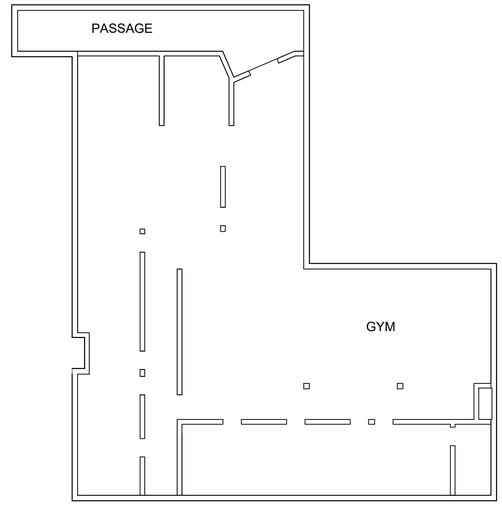
SECTION B-B
SCALE 1:25

GYM EAVES LAYOUT
BLOCK E
SCALE 1:25

SECTION A-A
SCALE 1:25



SECTION C-C
SCALE 1:25



KEY PLAN
BLOCK E
SCALE 1:150

DRAWING FILE LOCATION / NAME

150 mm ON ORIGINAL

A1

REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
A	12/02/2024	ISSUED FOR INFORMATION		
B	20/02/2024	VERANDA AND INTERNAL WALLS ADJUSTED		

DRAWING APPROVED

ENGINEER : .....

PR ENG No. : .....

SIGNATURE : .....

TITLE	NAME
DRAFTER	S.GIRD
DRAFTING CHECK	A.SIBIYA
DESIGNER	S.GIRD
DESIGN CHECK	A.SIBIYA
PROJECT MANAGER	J.KAMPMAN
PROJECT DIRECTOR	J.KAMPMAN

SCALES AT AN A1 SIZE DRAWING

SCALE 1:10 0.1 0 0.1 0.2 0.3 0.4 0.5

SCALE 1:2 0.01 0 0.02 0.04 0.06 0.08 0.1

DESIGNER

SMEC
Member of the Surbana Jurong Group

SMEC PROJECT No EC0034

CLIENT

health
Department: Health
REPUBLIC OF SOUTH AFRICA

EASTERN CAPE DEPARTMENT OF HEALTH

MOTHERWELL CHC

BLOCK E

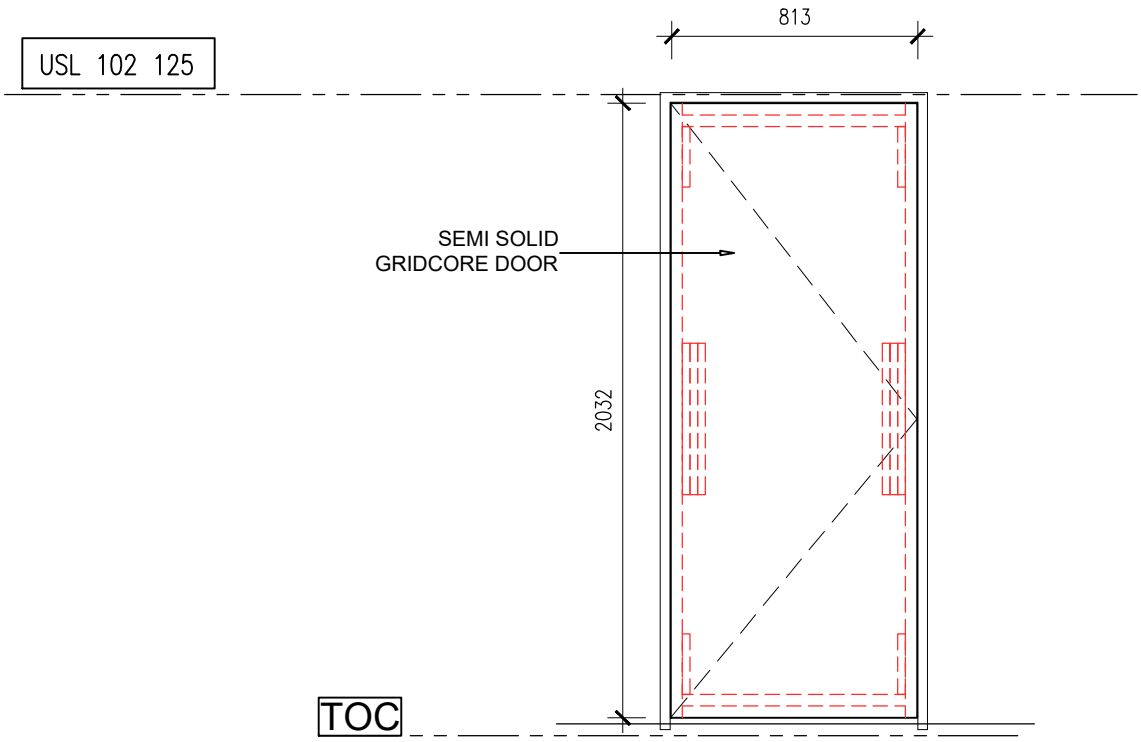
EAVES BEAM LAYOUT

STRUCTURAL DRAWING

PHASE	DRAWING TYPE	DRAWING NUMBER	REVISION
1	DRW	068	B

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:



A. DOOR

DOOR TYPE SPECIFICATIONS	813 X 2032 X 44mm THICK SEMI SOLID COMPOSITE BOARD GRIDCORE DOOR CONSTRUCTED FROM KILN DRIED FRAME WITH DOUBLE TOP RAIL TO SUITE A DOOR CLOSURE AND BOTTOM RAILS WITH LOCK BLOCKS AND HINGE BLOCKS ON BOTH SIDES, PAINTED SURFACE FINISH BOTH SIDES FLUSH PANEL DOOR, WITH 6mm TIMBER EDGES ALL AROUND, WITH SLIGHTLY ROUNDED ARRIS. PURPOSE MADE TO SUITE DOOR FRAME.
S.A.B.S:	EXPOSURE CLASS: CLASS 4 (DRY INTERIORS) EXPOSED TO DRY SHELTERED (INDOOR) CONDITIONS ONLY PERFORMANCE CLASS: SUITABLE FOR MEDIUM DUTY DRY INTERIOR APPLICATIONS (MD–DI)
MASS:	APPROXIMATELY 21KG PER DOOR LEAF
FINISH:	TO BE SANDED SMOOTH AND TWO COATS PAINT APPLIED.
IRONMONG SET	REFER TO THE LATEST IRONMONGERY SCHEDULE

B. FRAME

FRAME TYPE	EXISTING STEEL DOOR FRAME TO REMAIN / REPURPOSED – PAINTED
HINGES:	1 ½ PAIRS DORMA DBB–SS–009 TWO BALL BEARING BUTT HINGES FLUSH FIXED TO FRAME WITH STAINLESS STEEL POP RIVETS. FRAME MANUFACTURER TO PROVIDE RECESSES IN FRAME TO ALLOW HINGE TO BE FLUSH WITH FRAME.

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.:
Township: MOTHERWELL

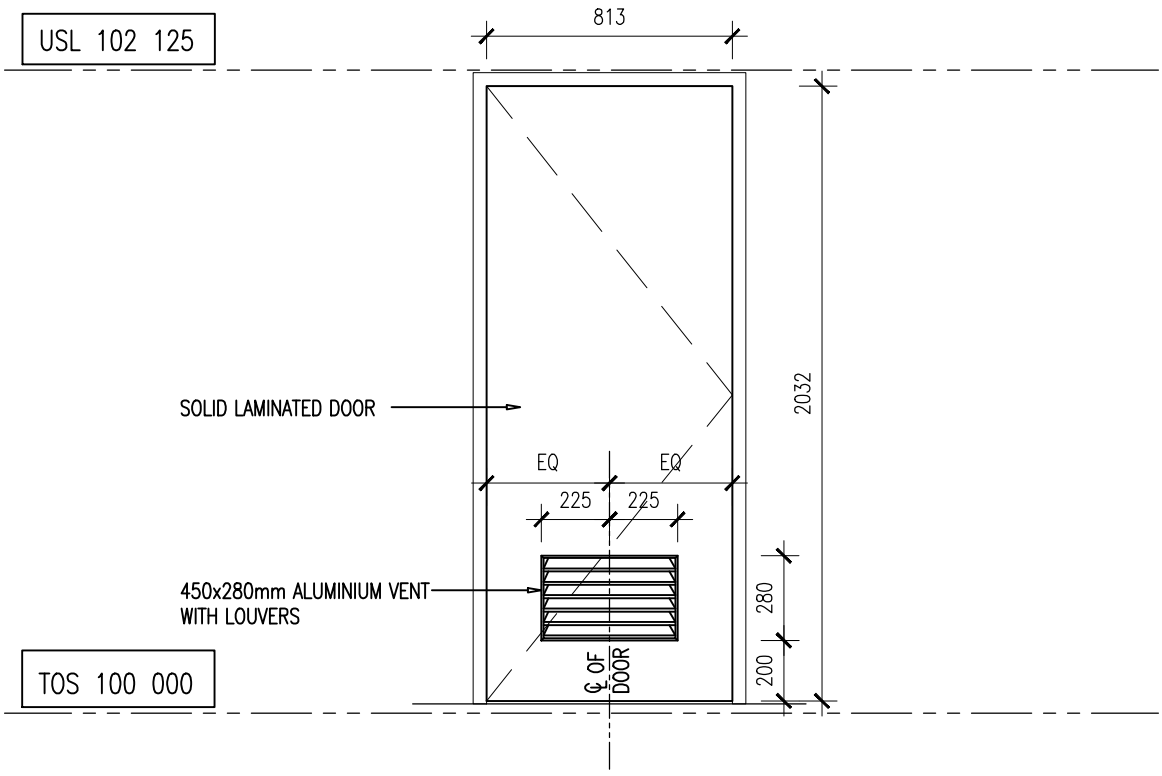
Drawing Title: DOOR TYPES
TYPE DT01

Scale: N/A Date: 2024-01-12 Drawn: MS

Drawing No.: 3239_DS01 Revision -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:



A. DOOR

DOOR TYPE SPECIFICATIONS	813 X 2032 X 44mm THICK SOLID LAMINATED DOOR CONSTRUCTED FROM KILN DRIED FRAME WITH DOUBLE TOP RAIL TO SUITE A DOOR CLOSURE AND BOTTOM RAILS WITH LOCK BLOCKS AND HINGE BLOCKS ON BOTH SIDES, PAINTED SURFACE FINISH BOTH SIDES FLUSH PANEL DOOR, WITH 6mm TIMBER EDGES ALL AROUND, WITH SLIGHTLY ROUNDED ARRIS. PURPOSE MADE TO SUITE DOOR FRAME. REQUIREMENTS: ALLOW FOR 450x280mm CUT OUT FOR VENT
S.A.B.S:	EXPOSURE CLASS: CLASS 4 (DRY INTERIORS) EXPOSED TO DRY SHELTERED (INDOOR) CONDITIONS ONLY PERFORMANCE CLASS: SUITABLE FOR HEAVY DUTY DRY INTERIOR APPLICATIONS (HD–DI)
MASS:	APPROXIMATELY 34KG PER DOOR LEAF
FINISH:	TO BE SANDED SMOOTH AND TWO COATS PAINT APPLIED.
IRONMONG SET	REFER TO THE LATEST IRONMONGERY SCHEDULE

B. FRAME

FRAME TYPE	EXISTING STEEL DOOR FRAME TO REMAIN / REPURPOSED – PAINTED
HINGES:	1 ½ PAIRS DORMA DBB–SS–009 TWO BALL BEARING BUTT HINGES FLUSH FIXED TO FRAME WITH STAINLESS STEEL POP RIVETS. FRAME MANUFACTURER TO PROVIDE RECESSES IN FRAME TO ALLOW HINGE TO BE FLUSH WITH FRAME.

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.:
Township: MOTHERWELL

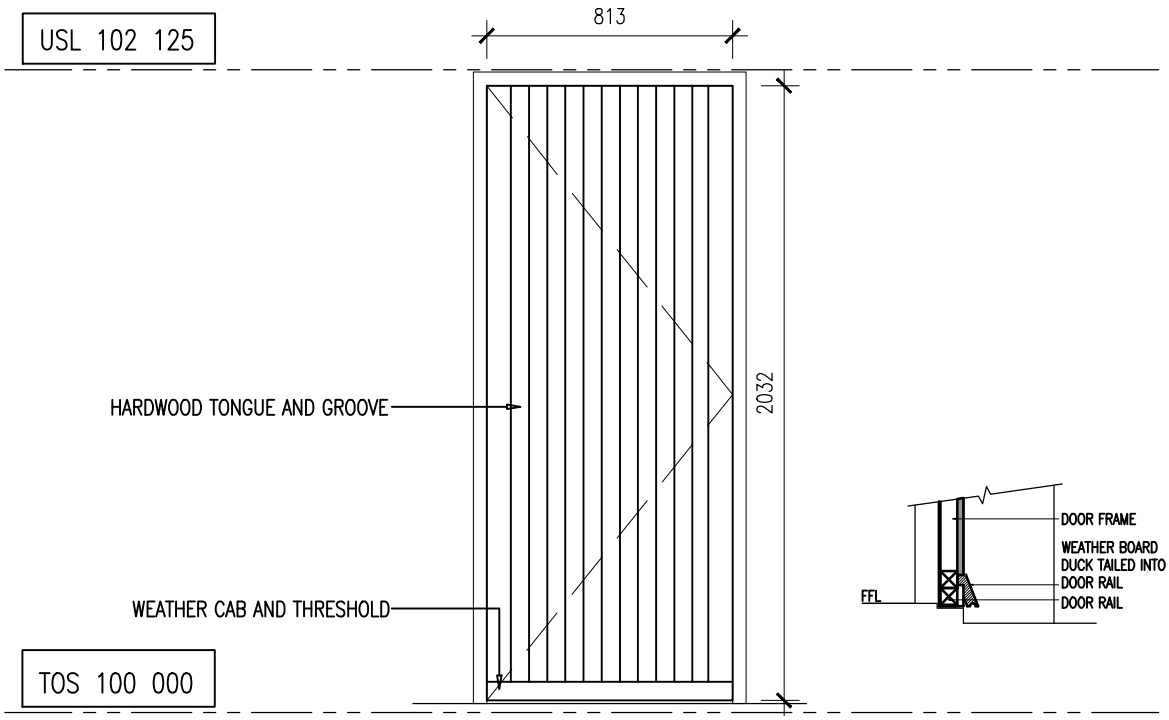
Drawing Title: DOOR TYPES
TYPE DT03

Scale: N/A Date: 2024-01-12 Drawn: WC

Drawing No.: 3239_DS03 Revision -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:



A. DOOR

DOOR TYPE SPECIFICATIONS	813 X 2032 X 40mm THICK HARDWOOD FLB & B TO SUITE DOOR FRAME. DOOR CONSTRUCTION: CONSTRUCTED FROM KILN DRIED (KD) HARDWOOD FRAMED, LEDGED, BATTENED AND BRACED DOOR. HARDWOOD TONGUE AND GROOVE V JOINTED BOARDING GLUED TO FRAME ON ONE SIDE WITH WEATHER AND BOIL ADHESIVE AND A FLUSH BACK (BOTH BATTEN AND MIDDLE RAIL AND BOTTOM RAIL ARE CONCEALED BY A PLY WOOD COVERING FITTING FLUSH WITH THE TOP RAIL AND STILES. SUPPLIED RAW AND FINE SANDED REQUIREMENTS: (1) ALLOW FOR A WEATHER BAR – MOLDED TIMBER SECTION FITTED TO THE BOTTOM OF EXTERIOR DOORS TO PREVENT WATER RUNNING UNDER THE BOTTOM OF DOOR.
S.A.B.S:	EXPOSURE CLASS: CLASS 1 (EXTERIOR) CONSTANTLY EXPOSED TO UNPROTECTED OPEN–AIR CONDITIONS PERFORMANCE CLASS: SUITABLE FOR HEAVY DUTY CLASS 1 EXTERIOR APPLICATIONS (HD–CLASS 1 EXT)
MASS:	APPROXIMATELY 30KG PER DOOR LEAF
FINISH:	TO BE SANDED SMOOTH AND TWO COATS PAINT APPLIED.
IRONMONG SET	REFER TO THE LATEST IRONMONGERY SCHEDULE

B. FRAME

FRAME TYPE	EXISTING TIMBER DOOR FRAME TO REMAIN / REPURPOSED – VARNISHED
HINGES:	1 ½ PAIRS DORMA DBB–SS–009 TWO BALL BEARING BUTT HINGES FLUSH FIXED TO TIMBER FRAME.

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.:
Township: MOTHERWELL

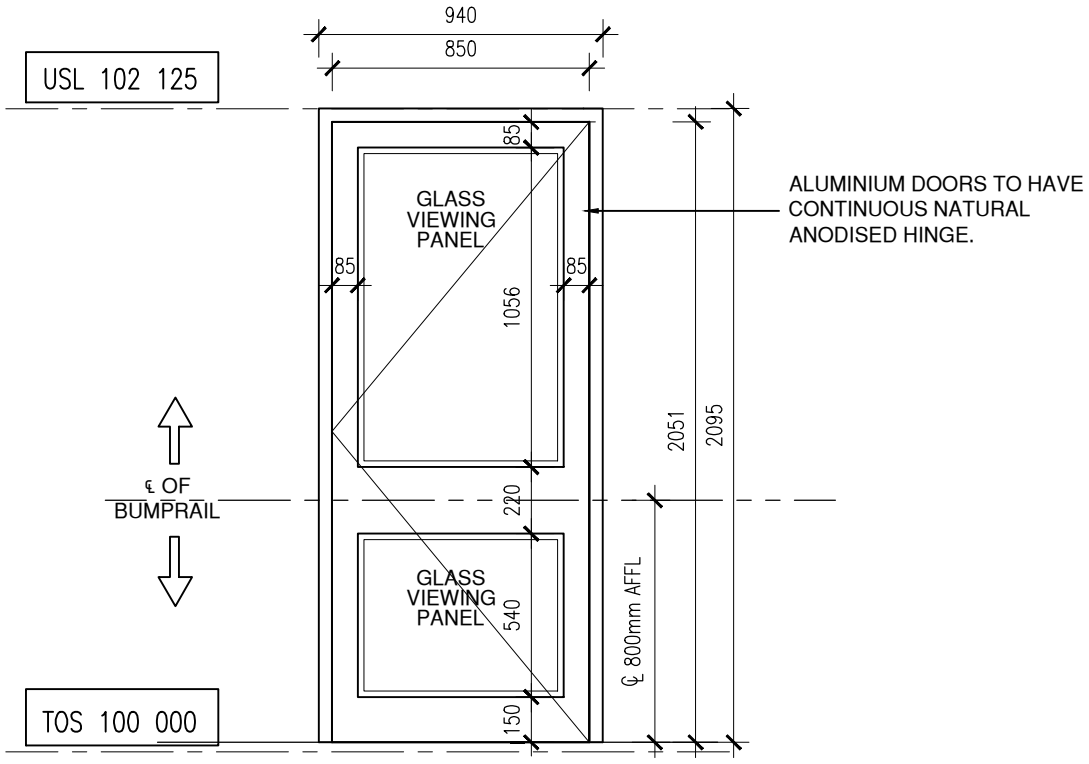
Drawing Title: DOOR TYPES
TYPE DT05

Scale: N/A Date: 2024-01-12 Drawn: WC

Drawing No.: 3239_DS05 Revision -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:



A. DOOR

DOOR TYPE SPECIFICATIONS	850 X 2050 ALUMINIUM SINGLE DOOR WITH GLAZED PANELS AS INDICATED. (1) SUBCONTRACTORS ARE RESPONSIBLE FOR THE STRUCTURAL DESIGN OF ALL UNITS AND WATER TESTS ON UNITS (ALL AS PER SABS AND AAAMSA REQUIREMENTS) (2) SUBCONTRACTORS ARE RESPONSIBLE IS TO ALLOW FOR ALL NECESSARY TOLERANCES AND FOR ALL SEALERS AROUND ALL UNITS AT JUNCTIONS TO WALLS SILLS ETC. (3) CONTRACTOR TO ALLOW FOR ALL NECESSARY CUT–OUTS FOR LOCKS AND DOOR MONITORING MECHANISMS ETC
GLAZING	(4) SUBCONTRACTORS CAN USE THEIR OWN SECTIONS BUT ARE REQUIRED TO SUBMIT ALL SABS AND AAAMSA TEST RESULTS PRIOR TO MANUFACTURE AND TO GET ARCHITECTS APPROVAL. (5) ALL OPENING WINDOWS AND DOORS TO BE FITTED WITH DUST SEALS TO ARCHITECTS APPROVAL.
S.A.B.S:	ALL GLASS TO BE IN ACCORDANCE WITH SABS 0400 PART N. 6.38mm LAMINATED GLASS. ALL SAFETY GLASS MATERIALS (INDIVIDUAL PANES) ARE TO BE PERMANENTLY MARKED AND ALL MARKS TO BE VISIBLE AFTER GLAZING, TO ARCHITECTS APPROVAL ALL GLAZING IS TO BE DONE IN STRICT ACCORDANCE WITH ALL SABS 0137 (REFER TO SAGGA AND AAAMSA GENERAL SPECIFICATIONS AND SELECTION GUIDES)
MASS:	APPROXIMATELY 34KG PER DOOR LEAF
FINISH:	NATURAL ANODIZED
IRONMONG SET	REFER TO THE LATEST IRONMONGERY SCHEDULE

B. FRAME

FRAME TYPE	ALUMINIUM – NATURAL ANODIZED – DOOR FRAME, AS PER MANUFACTURER
HINGES:	1x HEAVY DUTY CONTINUOUS GEARED HINGES FIXED TO FRAME AND DOOR WITH STAINLESS STEEL POP RIVETS AS PER MANUFACTURER.

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.:
Township: MOTHERWELL

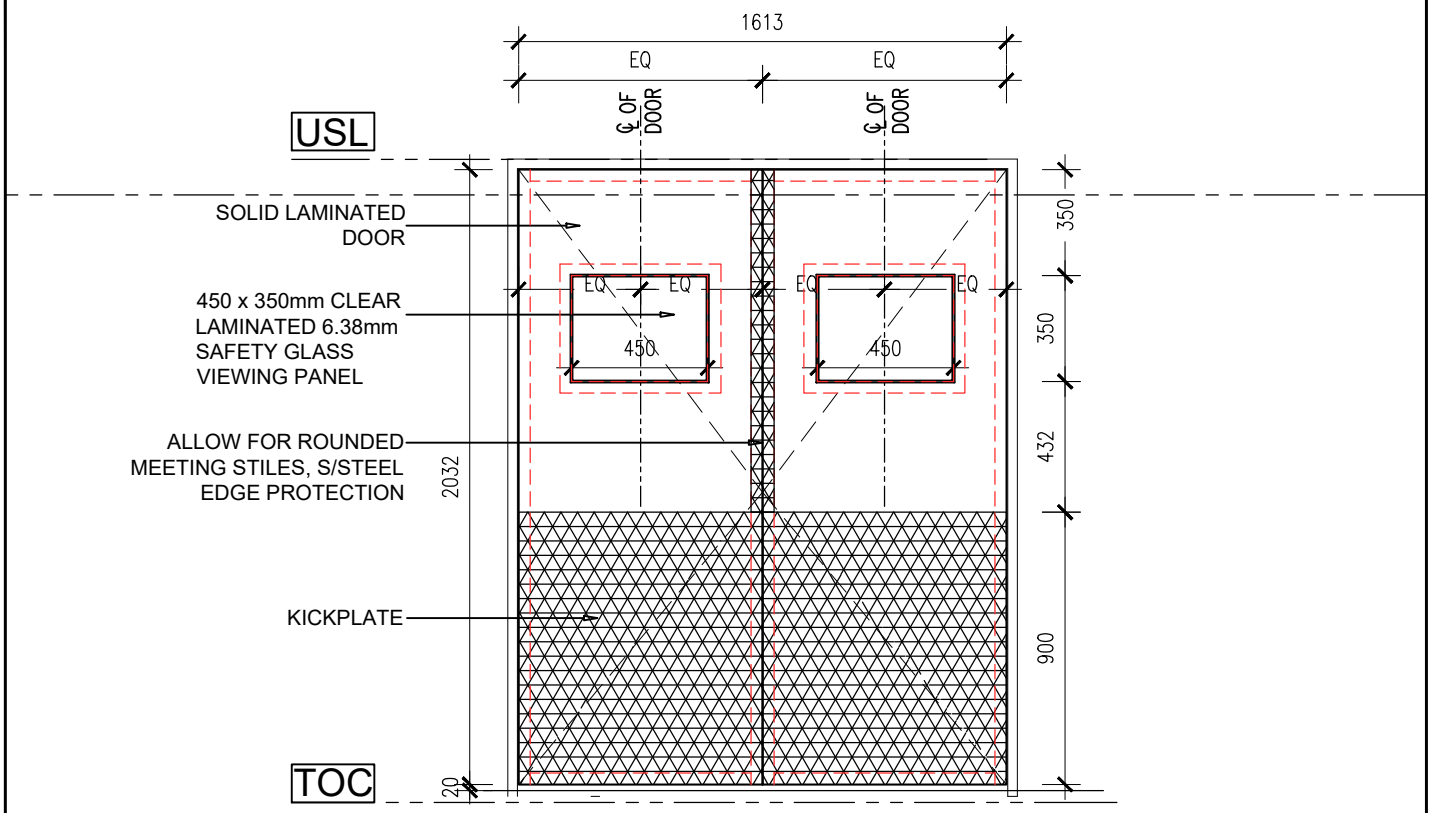
Drawing Title: DOOR TYPES
TYPE DT07

Scale: N/A Date: 2024-01-12 Drawn: WC

Drawing No.: 3239_DS07 Revision -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:



A. DOOR

DOOR TYPE SPECIFICATIONS	2X (813 X 2032 X 44mm) THICK SOLID LAMINATED DOOR CONSTRUCTED FROM KILN DRIED FRAME WITH DOUBLE TOP RAIL TO SUITE A DOOR CLOSURE AND BOTTOM RAILS WITH LOCK BLOCKS AND HINGE BLOCKS ON BOTH SIDES, PAINTED SURFACE FINISH BOTH SIDES FLUSH PANEL DOOR, WITH 6mm TIMBER EDGES ALL AROUND, WITH ROUNDED ARRIS. PURPOSE MADE TO SUITE DOOR FRAME. REQUIREMENTS: (1) ALLOW FOR 450x350mm CUT OUT FOR VIEWING PANELS (2) 900mm HIGH, 1,6mm THICK SATIN FINISHED GRADE 18/8 STAINLESS STEELKICK PLATE GLUED AND COUNTERSUNK HOLED FOR AND SCREWED TO DOOR AT 150MM CENTRES AROUND EDGES WITH COUNTERSUNK HEADED STAINLESS STEEL SCREWS TO ONE SIDE OF DOOR (3) ALLOW FOR ROUNDED MEETING STILES
GLAZING	
S.A.B.S:	EXPOSURE CLASS: CLASS 4 (DRY INTERIORS) EXPOSED TO DRY SHELTERED (INDOOR) CONDITIONS ONLY PERFORMANCE CLASS: SUITABLE FOR HEAVY DUTY DRY INTERIOR APPLICATIONS (HD–DI) ALL GLASS TO BE IN ACCORDANCE WITH SABS 0400 PART N. 6.38mm LAMINATED GLASS. ALL SAFETY GLASS MATERIALS (INDIVIDUAL PANES) ARE TO BE PERMANENTLY MARKED AND ALL MARKS TO BE VISIBLE AFTER GLAZING, TO ARCHITECTS APPROVAL
MASS:	APPROXIMATELY 34KG PER DOOR LEAF
FINISH:	TO BE SANDED SMOOTH AND TWO COATS PAINT APPLIED.
IRONMONG SET	REFER TO THE LATEST IRONMONGERY SCHEDULE

B. FRAME

FRAME TYPE	EXISTING STEEL DOOR FRAME TO REMAIN / REPURPOSED – PAINTED
HINGES:	1 ½ PAIRS HEAVY DUTY GALVANIZED STEEL T–HINGES FLUSH FIXED TO FRAME WITH STAINLESS STEEL POP RIVETS. FRAME MANUFACTURER TO PROVIDE RECESSES IN FRAME TO ALLOW HINGE TO BE FLUSH WITH FRAME.

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.:
Township: PE CENTRAL

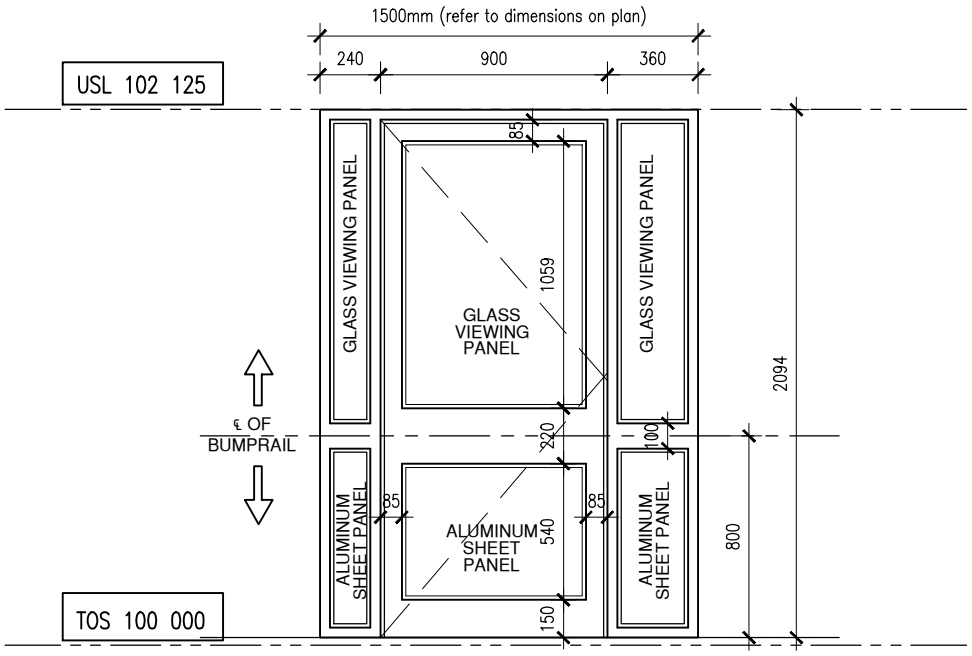
Drawing Title: DOOR TYPES
TYPE DT10

Scale: N/A Date: 2024-01-12 Drawn: WC

Drawing No.: 3239_DS10 Revision -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:



A. DOOR

DOOR TYPE SPECIFICATIONS	900 X 2055 ALUMINIUM SINGLE DOOR WITH GLAZED PANELS AS INDICATED. (1) SUBCONTRACTORS ARE RESPONSIBLE FOR THE STRUCTURAL DESIGN OF ALL UNITS AND WATER TESTS ON UNITS (ALL AS PER SABS AND AAAMSA REQUIREMENTS) (2) SUBCONTRACTORS ARE RESPONSIBLE IS TO ALLOW FOR ALL NECESSARY TOLERANCES AND FOR ALL SEALERS AROUND ALL UNITS AT JUNCTIONS TO WALLS SILLS ETC. (3) CONTRACTOR TO ALLOW FOR ALL NECESSARY CUT–OUTS FOR LOCKS AND DOOR MONITORING MECHANISMS ETC (4) SUBCONTRACTORS CAN USE THEIR OWN SECTIONS BUT ARE REQUIRED TO SUBMIT ALL SABS AND AAAMSA TEST RESULTS PRIOR TO MANUFACTURE AND TO GET ARCHITECTS APPROVAL. (5) ALL OPENING WINDOWS AND DOORS TO BE FITTED WITH DUST SEALS TO ARCHITECTS APPROVAL.
S.A.B.S: GLAZING	ALL GLASS TO BE IN ACCORDANCE WITH SABS 0400 PART N. 6.38mm LAMINATED GLASS. ALL SAFETY GLASS MATERIALS (INDIVIDUAL PANES) ARE TO BE PERMANENTLY MARKED AND ALL MARKS TO BE VISIBLE AFTER GLAZING, TO ARCHITECTS APPROVAL ALL GLAZING IS TO BE DONE IN STRICT ACCORDANCE WITH ALL SABS 0137 (REFER TO SAGGA AND AAAMSA GENERAL SPECIFICATIONS AND SELECTION GUIDES)
MASS:	APPROXIMATELY 34KG PER DOOR LEAF
FINISH:	ALUMINIUM – NATURAL ANODIZED
IRONMONG SET	REFER TO THE LATEST IRONMONGERY SCHEDULE

B. FRAME

FRAME TYPE	ALUMINIUM – NATURAL ANODIZED – DOOR FRAME, AS PER MANUFACTURER
HINGES:	1x HEAVY DUTY CONTINUOUS GEARED HINGES FIXED TO FRAME AND DOOR WITH STAINLESS STEEL POP RIVETS AS PER MANUFACTURER.

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.:
Township: PE CENTRAL

Drawing Title: DOOR TYPES
TYPE DT17

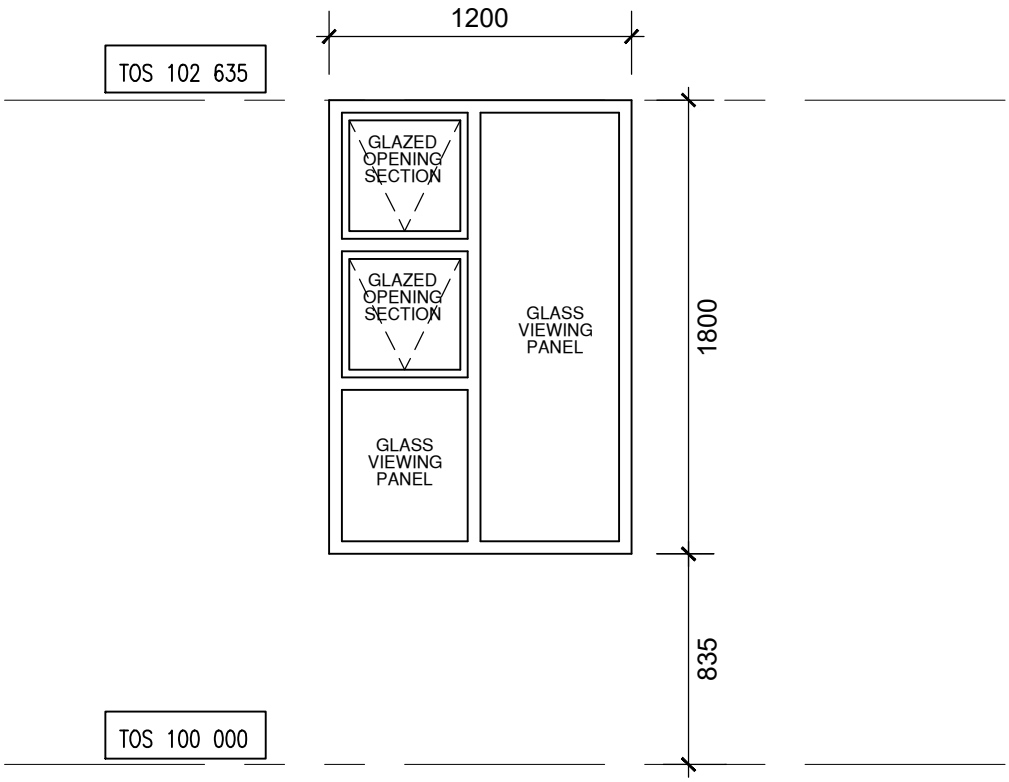
Scale: N/A Date: 2024-01-12 Drawn: ME

Drawing No.: 3239_DS17 Revision -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

All dimensions to be checked on site before any work is put in hand. Refer any discrepancies to the architect.



FRAME

DESCRIPTION: ALUMINIUM CASEMENT WINDOWS WITH 28mm TOP HUNG PROJECT-OUT SASH - FIXED PANE. EXTRUDED FROM 6063T6 ALUMINIUM ALLOY WITH A MIN. WALL THICKNESS OF 1.6mm. FRAME DEPTH 28mm OVERALL AND 76mm AGAINST MASONRY OPENINGS. SYSTEM SHALL MEET OR EXCEED THE REQUIREMENTS OF AAAMSA AND THE DESIGN LOADING DETERMINATION BY SABS 0160.

FINISH: 25µm NATURAL ANODISED COATING (FOR ARCHITECTURAL APPLICATIONS), SUPPLIED BY A MANUFACTURER COMPLYING WITH SANS 999:201.
FRAMES TO BE S.A.B.S APPROVED

GLAZING

DESCRIPTION: ALL GLASS TO BE IN ACCORDANCE WITH SABS 0400 PART N, AND SABS 0137. 6.38mm TRANSLUCENT / OPAQUE LAMINATED GLASS. ALL SAFETY GLASS MATERIALS (INDIVIDUAL PANES) ARE TO BE PERMANENTLY MARKED AND ALL MARKS TO BE VISIBLE AFTER GLAZING, FOR ARCHITECTS APPROVAL

IRONMONGERY

GENERAL: IRONMONGERY TO INCLUDE STANDARD FACTORY FITTINGS INCLUDING FRICTION STAYS, PROJECT OUT SASH HARDWARE, GLAZING GASKETS AND SEALS SUITABLE FOR 6.38mm SAFETY GLASS. TO BE APPROVED BY ARCHITECT OR AS PER IRONMONGERY SCHEDULE.

BURGLAR BARS: AS PER BURGLAR BAR SCHEDULE - TYPE BB13

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.:
Township: MOTHERWELL

Drawing Title: WINDOW TYPES
TYPE WT03a

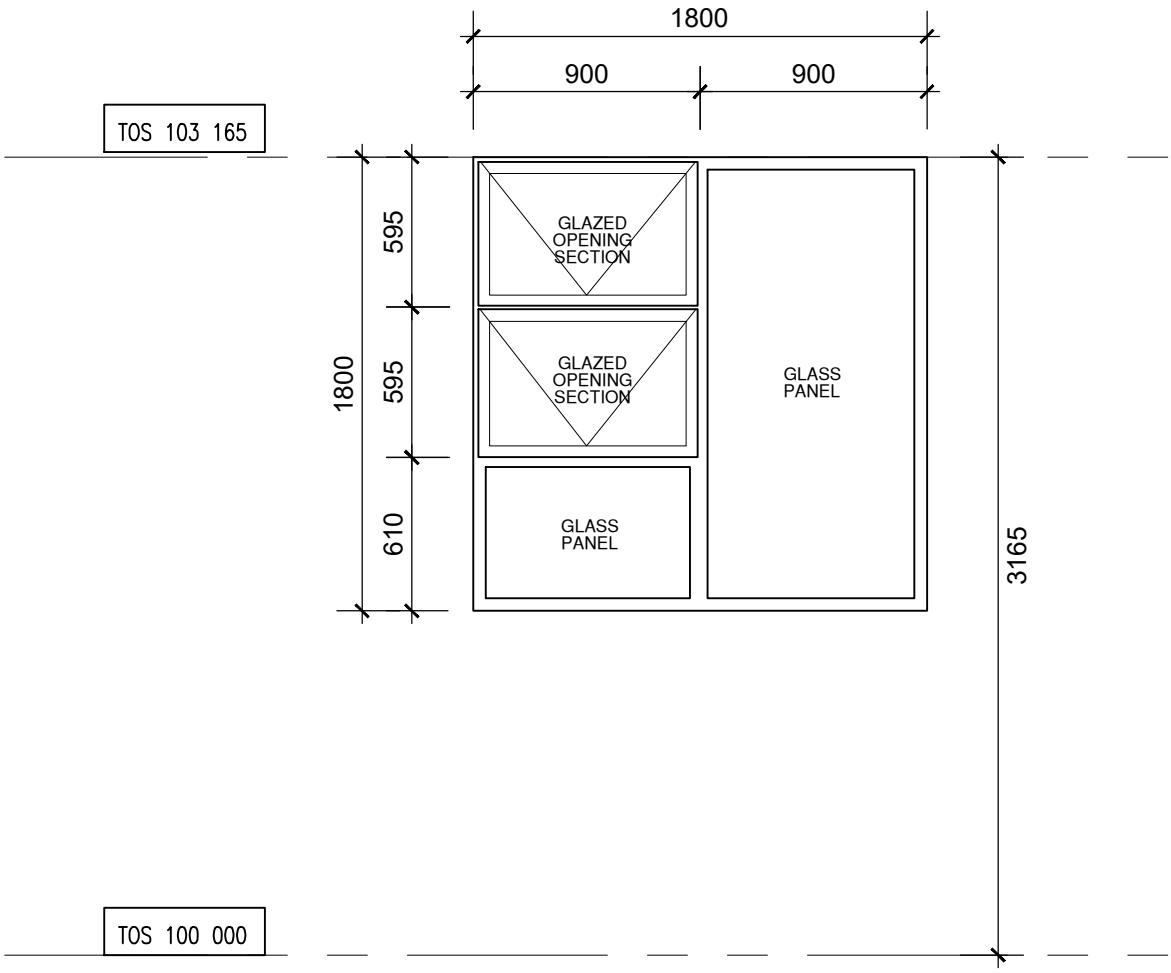
Scale: N/A *Date:* 2024-01-12 *Drawn:* MS

Drawing No.: 3239_WS03 *Revision* -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

All dimensions to be checked on site before any work is put in hand. Refer any discrepancies to the architect.



FRAME

DESCRIPTION: ALUMINIUM CASEMENT WINDOWS WITH 28mm TOP HUNG PROJECT-OUT SASH - FIXED PANE. EXTRUDED FROM 6063T6 ALUMINIUM ALLOY WITH A MIN. WALL THICKNESS OF 1.6mm. FRAME DEPTH 28mm OVERALL AND 76mm AGAINST MASONRY OPENINGS. SYSTEM SHALL MEET OR EXCEED THE REQUIREMENTS OF AAAMSA AND THE DESIGN LOADING DETERMINATION BY SABS 0160.

FINISH: 25µm NATURAL ANODISED COATING (FOR ARCHITECTURAL APPLICATIONS), SUPPLIED BY A MANUFACTURER COMPLYING WITH SANS 999:201.
FRAMES TO BE S.A.B.S APPROVED

GLAZING

DESCRIPTION: ALL GLASS TO BE IN ACCORDANCE WITH SABS 0400 PART N, AND SABS 0137. 6.38mm TRANSLUCENT / OPAQUE LAMINATED GLASS. ALL SAFETY GLASS MATERIALS (INDIVIDUAL PANES) ARE TO BE PERMANENTLY MARKED AND ALL MARKS TO BE VISIBLE AFTER GLAZING, FOR ARCHITECTS APPROVAL

IRONMONGERY

GENERAL: IRONMONGERY TO INCLUDE STANDARD FACTORY FITTINGS INCLUDING FRICTION STAYS, PROJECT OUT SASH HARDWARE, GLAZING GASKETS AND SEALS SUITABLE FOR 6.38mm SAFETY GLASS. TO BE APPROVED BY ARCHITECT OR AS PER IRONMONGERY SCHEDULE.

BURGLAR BARS: AS PER BURGLAR BAR SCHEDULE - TYPE BB13

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.:
Township: MOTHERWELL

Drawing Title: WINDOW TYPES
TYPE WT03b

Scale: N/A Date: 2024-01-12 Drawn: MS

Drawing No.: 3239_WS03 Revision -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

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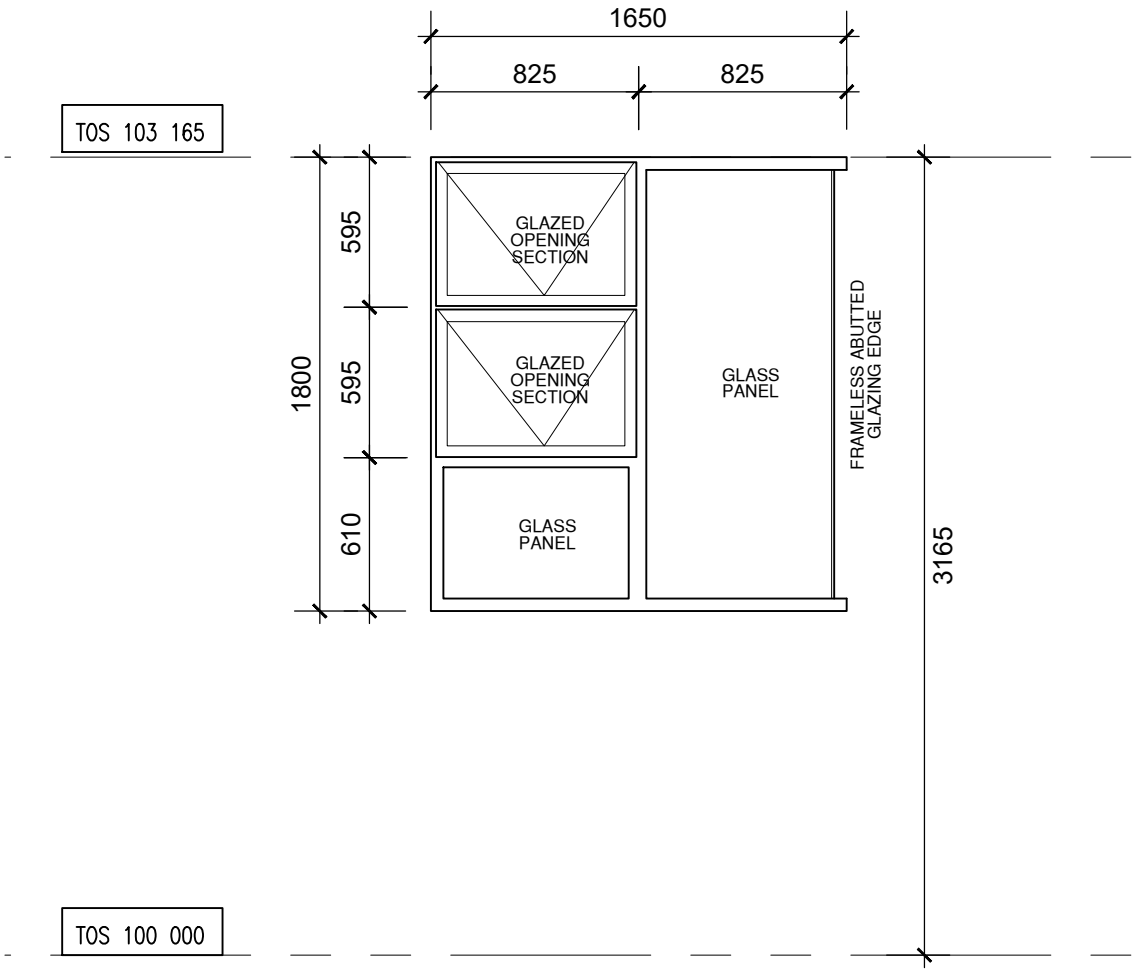

FRAME

DESCRIPTION: ALUMINIUM CASEMENT WINDOWS WITH 28mm TOP HUNG PROJECT-OUT SASH - FIXED PANE. EXTRUDED FROM 6063T6 ALUMINIUM ALLOY WITH A MIN. WALL THICKNESS OF 1.6mm. FRAME DEPTH 28mm OVERALL AND 76mm AGAINST MASONRY OPENINGS. SYSTEM SHALL MEET OR EXCEED THE REQUIREMENTS OF AAAMSA AND THE DESIGN LOADING DETERMINATION BY SABS 0160.

FINISH: 25µm NATURAL ANODISED COATING (FOR ARCHITECTURAL APPLICATIONS), SUPPLIED BY A MANUFACTURER COMPLYING WITH SANS 999:201.
FRAMES TO BE S.A.B.S APPROVED

GLAZING

DESCRIPTION: ALL GLASS TO BE IN ACCORDANCE WITH SABS 0400 PART N, AND SABS 0137. 6.38mm TRANSLUCENT / OPAQUE LAMINATED GLASS. ALL SAFETY GLASS MATERIALS (INDIVIDUAL PANES) ARE TO BE PERMANENTLY MARKED AND ALL MARKS TO BE VISIBLE AFTER GLAZING, FOR ARCHITECTS APPROVAL

IRONMONGERY

GENERAL: IRONMONGERY TO INCLUDE STANDARD FACTORY FITTINGS INCLUDING FRICTION STAYS, PROJECT OUT SASH HARDWARE, GLAZING GASKETS AND SEALS SUITABLE FOR 6.38mm SAFETY GLASS. TO BE APPROVED BY ARCHITECT OR AS PER IRONMONGERY SCHEDULE.

BURGLAR BARS: AS PER BURGLAR BAR SCHEDULE - TYPE BB13

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Province of the EASTERN CAPE HEALTH

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Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.:
Township: MOTHERWELL

Drawing Title: WINDOW TYPES
TYPE WT03-C

Scale: N/A Date: 2024-01-12 Drawn: ME

Drawing No.: 3239_WS03 Revision -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

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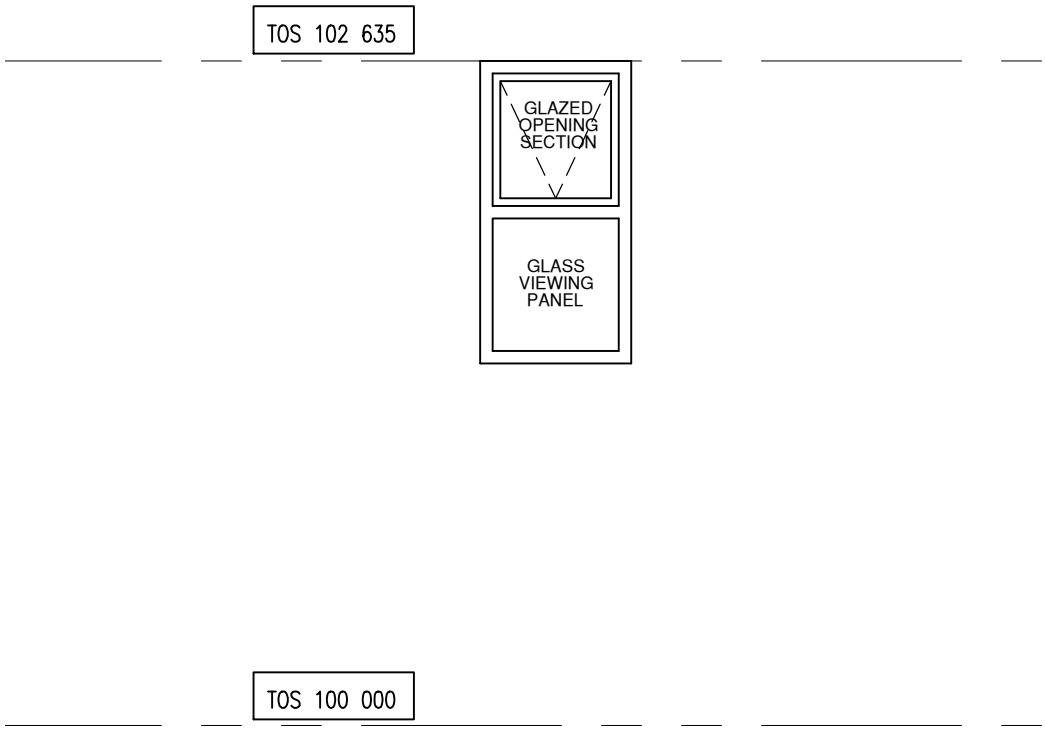

FRAME

DESCRIPTION: ALUMINIUM CASEMENT WINDOWS WITH 28mm TOP HUNG PROJECT-OUT SASH - FIXED PANE. EXTRUDED FROM 6063T6 ALUMINIUM ALLOY WITH A MIN. WALL THICKNESS OF 1.6mm. FRAME DEPTH 28mm OVERALL AND 76mm AGAINST MASONRY OPENINGS. SYSTEM SHALL MEET OR EXCEED THE REQUIREMENTS OF AAAMSA AND THE DESIGN LOADING DETERMINATION BY SABS 0160.

FINISH: 25µm NATURAL ANODISED COATING (FOR ARCHITECTURAL APPLICATIONS), SUPPLIED BY A MANUFACTURER COMPLYING WITH SANS 999:201.
FRAMES TO BE S.A.B.S APPROVED

GLAZING

DESCRIPTION: ALL GLASS TO BE IN ACCORDANCE WITH SABS 0400 PART N, AND SABS 0137. 6.38mm TRANSLUCENT / OPAQUE LAMINATED GLASS. ALL SAFETY GLASS MATERIALS (INDIVIDUAL PANES) ARE TO BE PERMANENTLY MARKED AND ALL MARKS TO BE VISIBLE AFTER GLAZING, FOR ARCHITECTS APPROVAL

IRONMONGERY

GENERAL: IRONMONGERY TO INCLUDE STANDARD FACTORY FITTINGS INCLUDING FRICTION STAYS, PROJECT OUT SASH HARDWARE, GLAZING GASKETS AND SEALS SUITABLE FOR 6.38mm SAFETY GLASS. TO BE APPROVED BY ARCHITECT OR AS PER IRONMONGERY SCHEDULE.

BURGLAR BARS: AS PER BURGLAR BAR SCHEDULE - TYPE BB11

BNM ARCHITECTS PROJECT MANAGERS
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postal address po box 12376, centrahil, port elizabeth, 6006

Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.:
Township: MOTHERWELL

Drawing Title: WINDOW TYPES
TYPE WT04

Scale: N/A *Date:* 2024-01-12 *Drawn:* MS

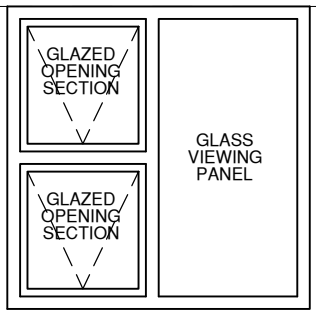
Drawing No.: 3239_WS04 *Revision* -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

All dimensions to be checked on site before any work is put in hand. Refer any discrepancies to the architect.

TOS 102 635



TOS 100 000

FRAME

DESCRIPTION: ALUMINIUM CASEMENT WINDOWS WITH 28mm TOP HUNG PROJECT-OUT SASH - FIXED PANE. EXTRUDED FROM 6063T6 ALUMINIUM ALLOY WITH A MIN. WALL THICKNESS OF 1.6mm. FRAME DEPTH 28mm OVERALL AND 76mm AGAINST MASONRY OPENINGS. SYSTEM SHALL MEET OR EXCEED THE REQUIREMENTS OF AAAMSA AND THE DESIGN LOADING DETERMINATION BY SABS 0160.

FINISH: 25µm NATURAL ANODISED COATING (FOR ARCHITECTURAL APPLICATIONS), SUPPLIED BY A MANUFACTURER COMPLYING WITH SANS 999:201.
FRAMES TO BE S.A.B.S APPROVED

GLAZING

DESCRIPTION: ALL GLASS TO BE IN ACCORDANCE WITH SABS 0400 PART N, AND SABS 0137. 6.38mm TRANSLUCENT / OPAQUE LAMINATED GLASS. ALL SAFETY GLASS MATERIALS (INDIVIDUAL PANES) ARE TO BE PERMANENTLY MARKED AND ALL MARKS TO BE VISIBLE AFTER GLAZING, FOR ARCHITECTS APPROVAL

IRONMONGERY

GENERAL: IRONMONGERY TO INCLUDE STANDARD FACTORY FITTINGS INCLUDING FRICTION STAYS, PROJECT OUT SASH HARDWARE, GLAZING GASKETS AND SEALS SUITABLE FOR 6.38mm SAFETY GLASS. TO BE APPROVED BY ARCHITECT OR AS PER IRONMONGERY SCHEDULE.

BURGLAR BARS: AS PER BURGLAR BAR SCHEDULE - TYPE BB16

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.:
Township: MOTHERWELL

Drawing Title: WINDOW TYPES
TYPE WT08

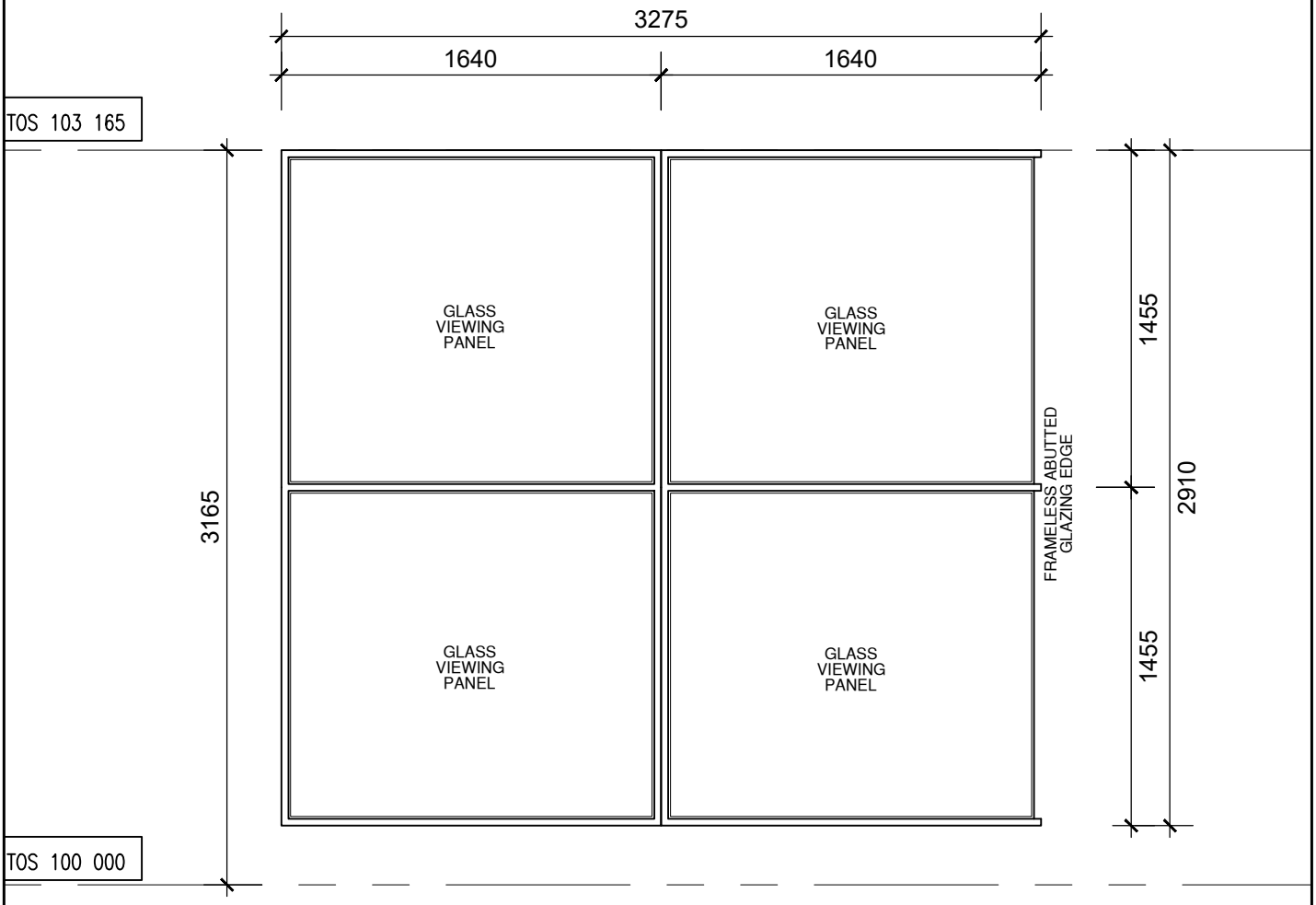
Scale: N/A *Date:* 2024-01-12 *Drawn:* MS

Drawing No.: 3239_WS08 *Revision* -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

All dimensions to be checked on site before any work is put in hand. Refer any discrepancies to the architect.



ALUMINIUM SHOP FRONTS:

ALL UNITS TO BE MANUFACTURED IN STRICT ACCORDANCE WITH ALL AAAMSA , GOVERNMENT AND LOCAL AUTHORITY REQUIREMENTS

- ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO MANUFACTURE
- SHOP DRAWINGS ARE TO BE SUBMITTED FOR ARCHITECTS APPROVAL PRIOR TO MANUFACTURE
- ANY DISCREPANCIES BETWEEN SCHEDULES AND PLANS ARE TO BE REPORTED TO ARCHITECTS IMMEDIATELY

SUBCONTRACTORS:

- SUBCONTRACTORS CAN USE THEIR OWN SECTIONS BUT ARE REQUIRED TO SUBMIT ALL SABS AND AAAMSA TEST RESULTS PRIOR TO MANUFACTURE AND TO GET ARCHITECTS APPROVAL
- SUBCONTRACTORS ARE RESPONSIBLE FOR THE STRUCTURAL DESIGN OF ALL UNITS
- SUBCONTRACTORS ARE RESPONSIBLE FOR OBTAINING WATER TESTS ON UNITS (ALL AS PER SABS AND AAAMSA REQUIREMENTS)
- SUBCONTRACTORS ARE RESPONSIBLE FOR ALL SEALERS AROUND ALL UNITS AT JUNCTIONS TO WALLS SILLS ETC.
- CONTRACTOR TO ALLOW FOR ALL NECESSARY CUT-OUTS FOR LOCKS AND DOOR MONITORING MECHANISMS ETC
- SUBCONTRACTORS IS TO ALLOW FOR ALL NECESSARY TOLERANCES

GLAZING:

- ALL GLAZING IS TO BE DONE IN STRICT ACCORDANCE WITH ALL SABS 0137 (REFER TO SAGGA AND AAAMSA GENERAL SPECIFICATIONS AND SELECTION GUIDES)
- ALL SAFETY GLAZING MATERIALS (INDIVIDUAL PANES) ARE TO BE PERMANENTLY MARKED AND ALL MARKS TO BE VISIBLE AFTER GLAZING
- 6.38MM CLEAR SAFETY GLAZING THROUGHOUT AS PER PART N - GLAZING OF SANS 10400.
- ALL WINDOWS AND GLAZED DOORS TO HAVE SQUARE GLAZING BEADING
- ALL GLAZING TO BE SAFETY GLAZING AND IS TO BE DONE IN STRICT ACCORDANCE WITH ALL GOVERNMENT REQUIREMENTS CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DEVIATIONS FROM THE REQUIREMENTS
- ALL OPENING WINDOWS AND DOORS TO BE FITTED WITH DUST SEALS TO ARCHITECTS APPROVAL

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC ALTERATIONS AND ADDITIONS

Stand No.:

Township: MOTHERWELL

Drawing Title: WINDOW TYPES TYPE WT11a

Scale: N/A *Date:* 2024-01-12 *Drawn:* MS

Drawing No.: 3239_WS11 *Revision* -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

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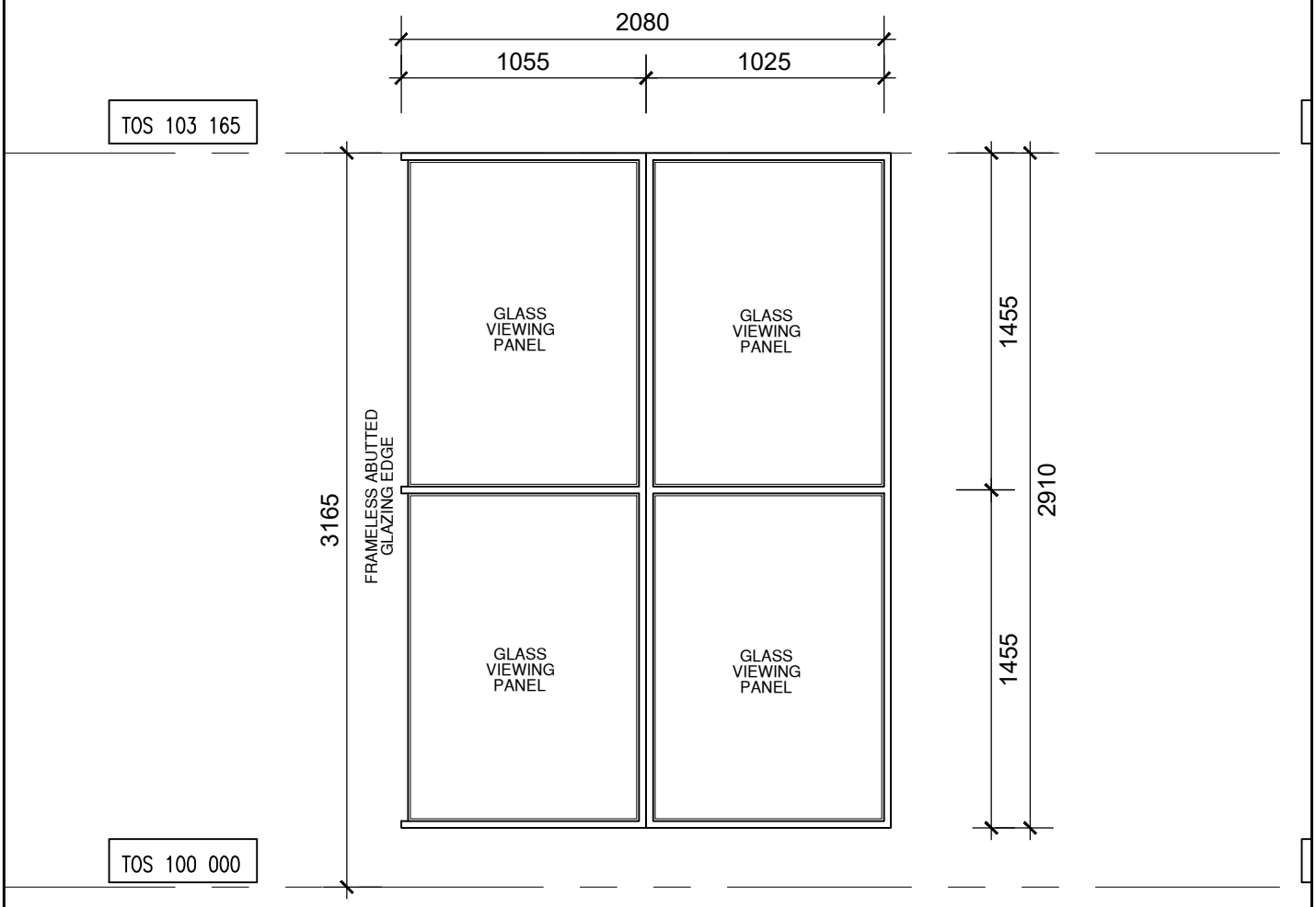

ALUMINIUM SHOP FRONTS:

ALL UNITS TO BE MANUFACTURED IN STRICT ACCORDANCE WITH ALL AAAMSA , GOVERNMENT AND LOCAL AUTHORITY REQUIREMENTS

- ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO MANUFACTURE
- SHOP DRAWINGS ARE TO BE SUBMITTED FOR ARCHITECTS APPROVAL PRIOR TO MANUFACTURE
- ANY DISCREPANCIES BETWEEN SCHEDULES AND PLANS ARE TO BE REPORTED TO ARCHITECTS IMMEDIATELY

SUBCONTRACTORS:

- SUBCONTRACTORS CAN USE THEIR OWN SECTIONS BUT ARE REQUIRED TO SUBMIT ALL SABS AND AAAMSA TEST RESULTS PRIOR TO MANUFACTURE AND TO GET ARCHITECTS APPROVAL
- SUBCONTRACTORS ARE RESPONSIBLE FOR THE STRUCTURAL DESIGN OF ALL UNITS
- SUBCONTRACTORS ARE RESPONSIBLE FOR OBTAINING WATER TESTS ON UNITS (ALL AS PER SABS AND AAAMSA REQUIREMENTS)
- SUBCONTRACTORS ARE RESPONSIBLE FOR ALL SEALERS AROUND ALL UNITS AT JUNCTIONS TO WALLS SILLS ETC.
- CONTRACTOR TO ALLOW FOR ALL NECESSARY CUT-OUTS FOR LOCKS AND DOOR MONITORING MECHANISMS ETC
- SUBCONTRACTORS IS TO ALLOW FOR ALL NECESSARY TOLERANCES

GLAZING:

- ALL GLAZING IS TO BE DONE IN STRICT ACCORDANCE WITH ALL SABS 0137 (REFER TO SAGGA AND AAAMSA GENERAL SPECIFICATIONS AND SELECTION GUIDES)
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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC ALTERATIONS AND ADDITIONS

Stand No.:

Township: MOTHERWELL

Drawing Title: WINDOW TYPES TYPE WT11b

Scale: N/A Date: 2024-01-12 Drawn: MS

Drawing No.: 3239_WS11 Revision -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

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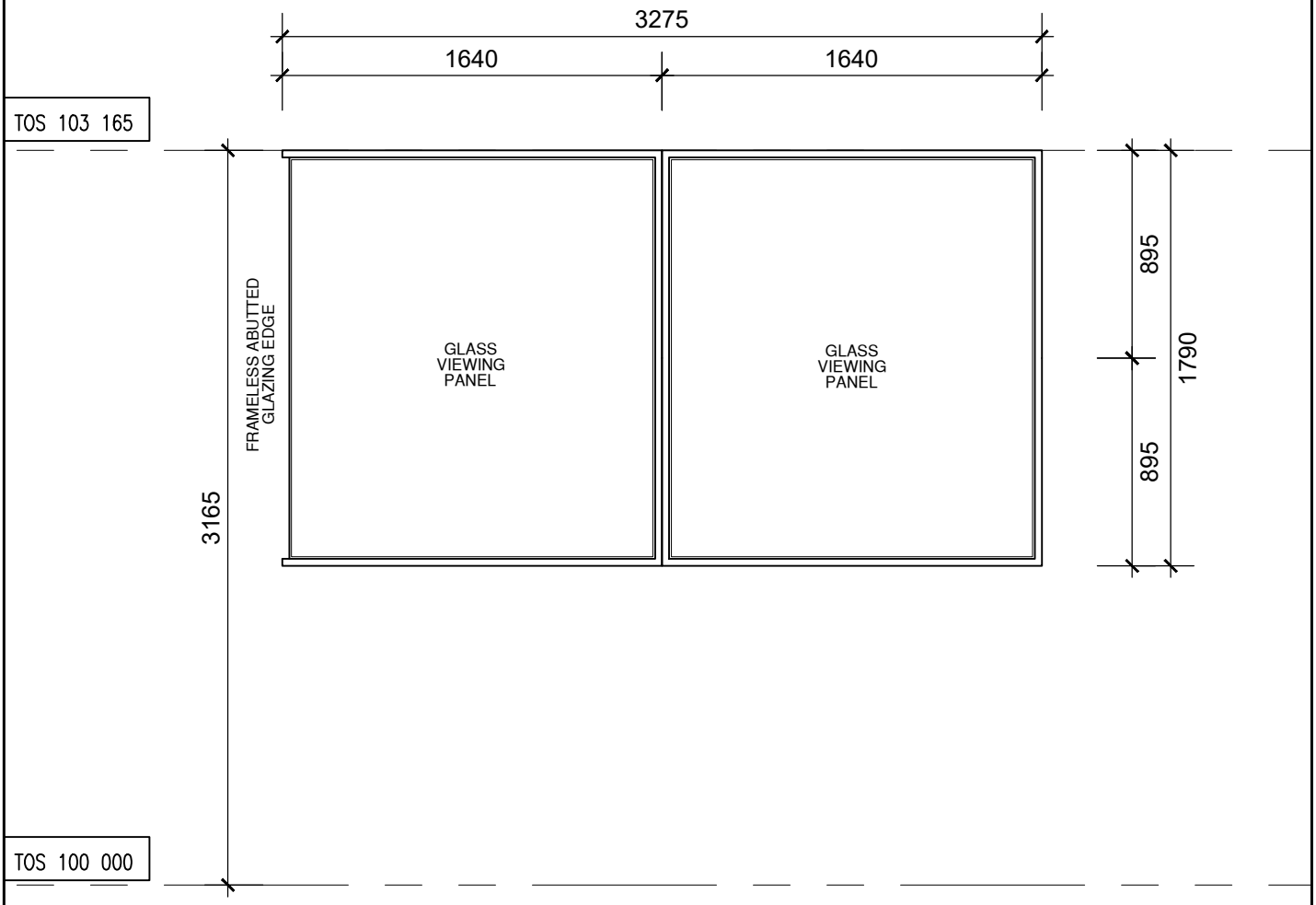

ALUMINIUM SHOP FRONTS:

ALL UNITS TO BE MANUFACTURED IN STRICT ACCORDANCE WITH ALL AAAMSA , GOVERNMENT AND LOCAL AUTHORITY REQUIREMENTS

- ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO MANUFACTURE
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SUBCONTRACTORS:

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GLAZING:

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC ALTERATIONS AND ADDITIONS

Stand No.:

Township: MOTHERWELL

Drawing Title: WINDOW TYPES TYPE WT11c

Scale: N/A Date: 2024-01-12 Drawn: MS

Drawing No.: 3239_WS11 Revision -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

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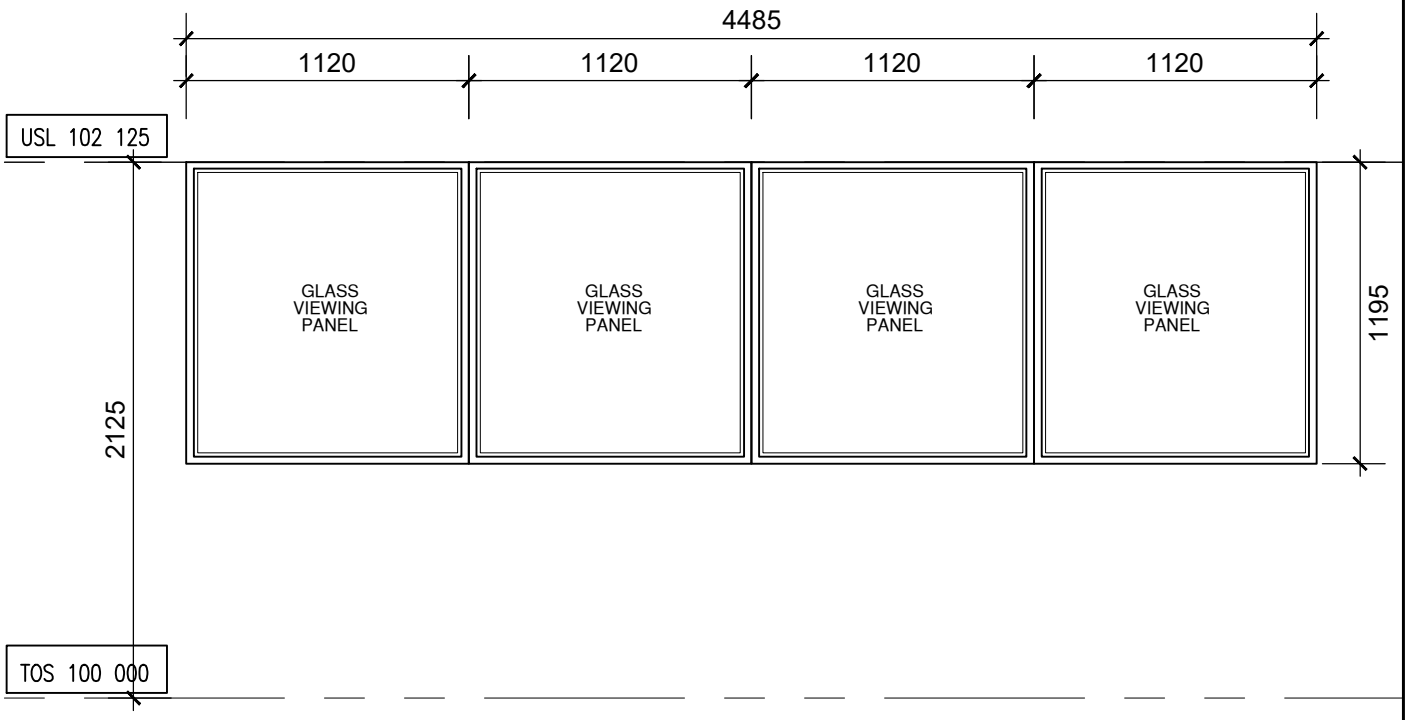

ALUMINIUM SHOP FRONTS:

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SUBCONTRACTORS:

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- CONTRACTOR TO ALLOW FOR ALL NECESSARY CUT-OUTS FOR LOCKS AND DOOR MONITORING MECHANISMS ETC
- SUBCONTRACTORS IS TO ALLOW FOR ALL NECESSARY TOLERANCES

GLAZING:

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC ALTERATIONS AND ADDITIONS

Stand No.:

Township: MOTHERWELL

Drawing Title: WINDOW TYPES TYPE WT11c

Scale: N/A Date: 2024-01-12 Drawn: MS

Drawing No.: 3239_WS11 Revision -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

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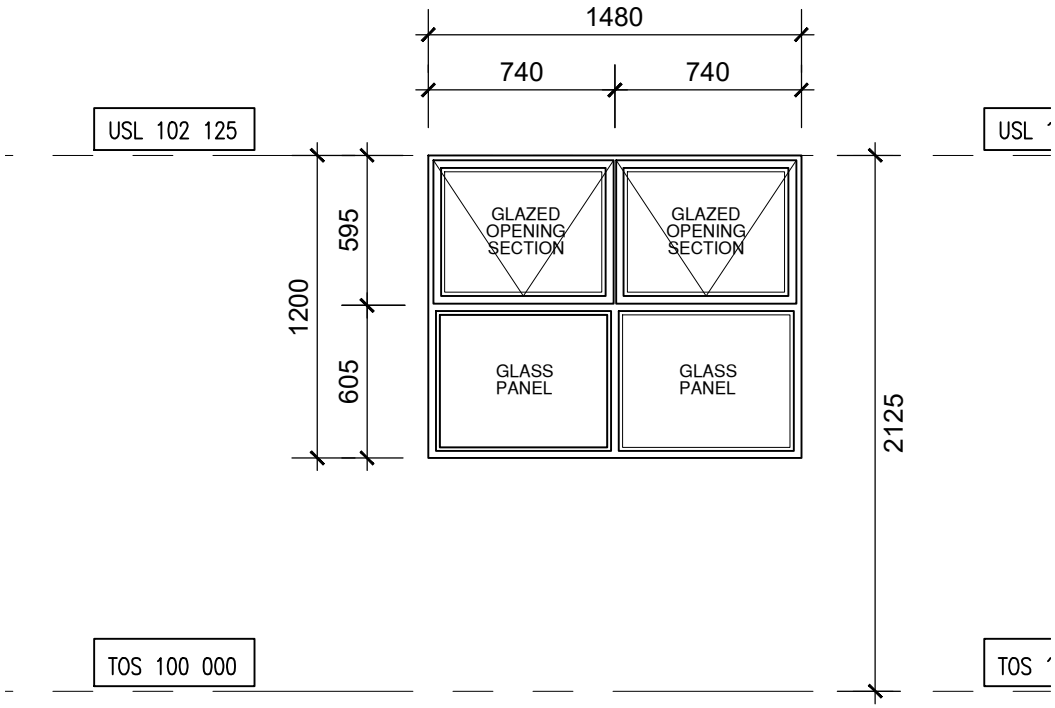

FRAME

DESCRIPTION: ALUMINIUM CASEMENT WINDOWS WITH 28mm TOP HUNG PROJECT-OUT SASH - FIXED PANE. EXTRUDED FROM 6063T6 ALUMINIUM ALLOY WITH A MIN. WALL THICKNESS OF 1.6mm. FRAME DEPTH 28mm OVERALL AND 76mm AGAINST MASONRY OPENINGS. SYSTEM SHALL MEET OR EXCEED THE REQUIREMENTS OF AAAMSA AND THE DESIGN LOADING DETERMINATION BY SABS 0160.

FINISH: 25µm NATURAL ANODISED COATING (FOR ARCHITECTURAL APPLICATIONS), SUPPLIED BY A MANUFACTURER COMPLYING WITH SANS 999:201.
FRAMES TO BE S.A.B.S APPROVED

GLAZING

DESCRIPTION: ALL GLASS TO BE IN ACCORDANCE WITH SABS 0400 PART N, AND SABS 0137. 6.38mm TRANSLUCENT / OPAQUE LAMINATED GLASS. ALL SAFETY GLASS MATERIALS (INDIVIDUAL PANES) ARE TO BE PERMANENTLY MARKED AND ALL MARKS TO BE VISIBLE AFTER GLAZING, FOR ARCHITECTS APPROVAL

IRONMONGERY

GENERAL: IRONMONGERY TO INCLUDE STANDARD FACTORY FITTINGS INCLUDING FRICTION STAYS, PROJECT OUT SASH HARDWARE, GLAZING GASKETS AND SEALS SUITABLE FOR 6.38mm SAFETY GLASS. TO BE APPROVED BY ARCHITECT OR AS PER IRONMONGERY SCHEDULE.

BURGLAR BARS: AS PER BURGLAR BAR SCHEDULE - TYPE BB06

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.:
Township: MOTHERWELL

Drawing Title: WINDOW TYPES
TYPE WT12

Scale: N/A Date: 2024-01-12 Drawn: MS

Drawing No.: 3239_WS12 Revision -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

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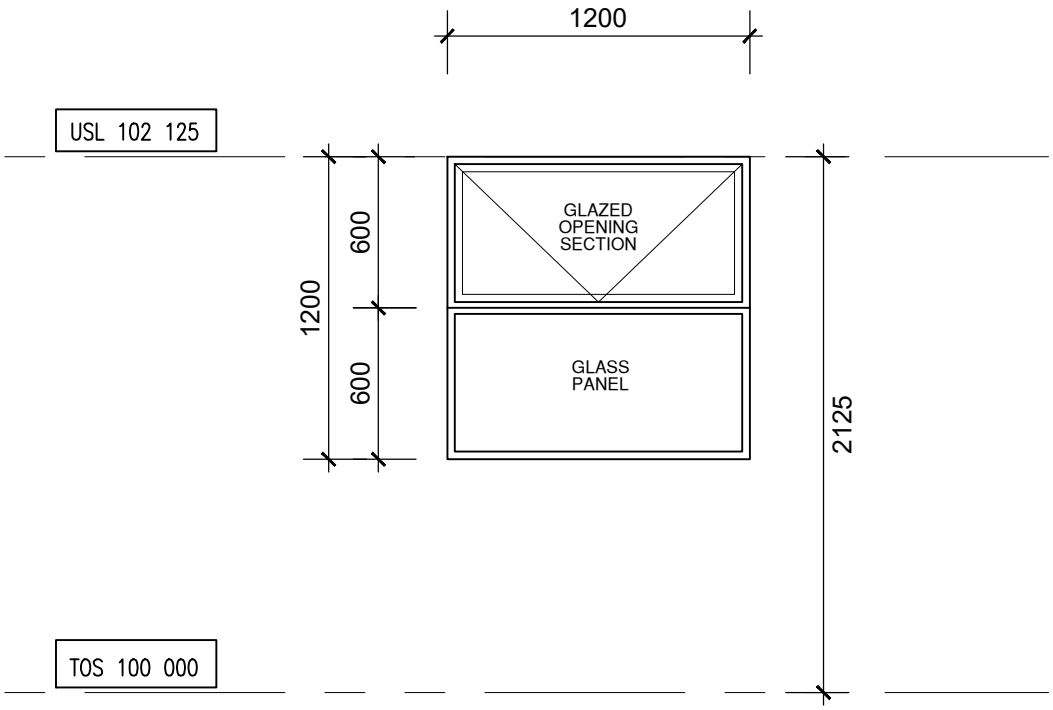

FRAME

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BURGLAR BARS: AS PER BURGLAR BAR SCHEDULE - TYPE BB06

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.:
Township: MOTHERWELL

Drawing Title: WINDOW TYPES
TYPE WT13

Scale: N/A Date: 2024-01-12 Drawn: MS

Drawing No.: 3239_WS13 Revision -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

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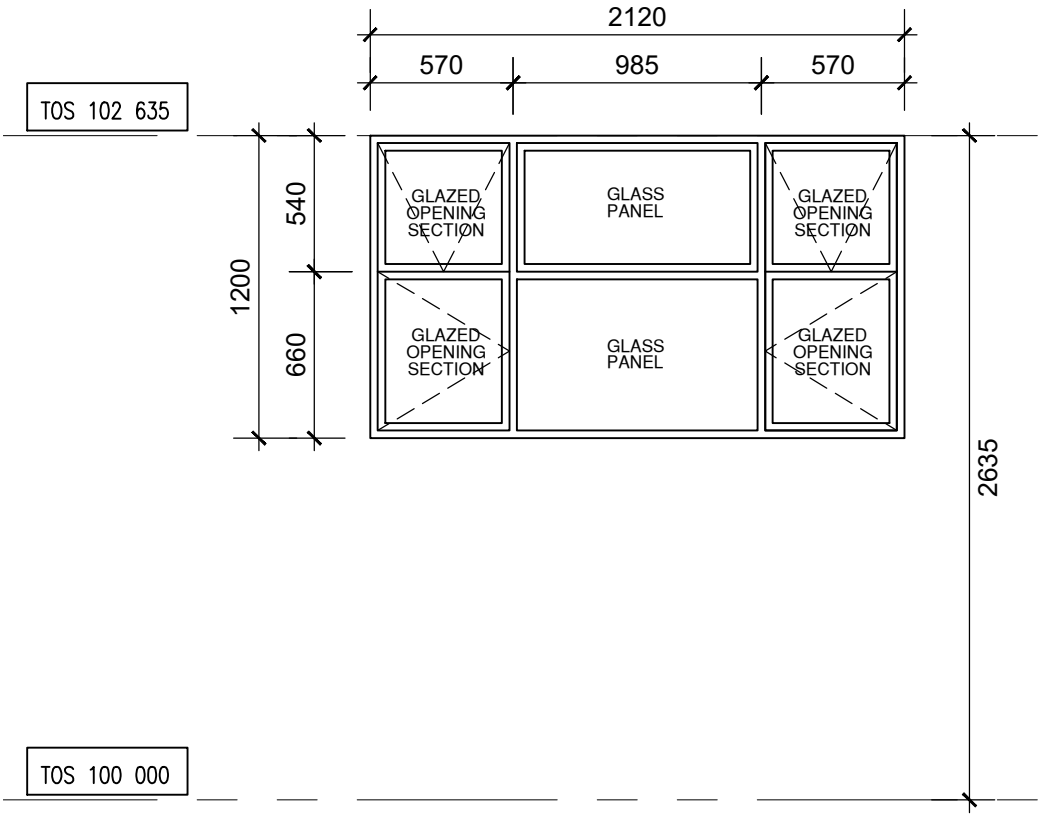

FRAME

DESCRIPTION: ALUMINIUM CASEMENT WINDOWS WITH 28mm TOP HUNG PROJECT-OUT SASH - FIXED PANE. EXTRUDED FROM 6063T6 ALUMINIUM ALLOY WITH A MIN. WALL THICKNESS OF 1.6mm. FRAME DEPTH 28mm OVERALL AND 76mm AGAINST MASONRY OPENINGS. SYSTEM SHALL MEET OR EXCEED THE REQUIREMENTS OF AAAMSA AND THE DESIGN LOADING DETERMINATION BY SABS 0160.

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DESCRIPTION: ALL GLASS TO BE IN ACCORDANCE WITH SABS 0400 PART N, AND SABS 0137. 6.38mm TRANSLUCENT / OPAQUE LAMINATED GLASS. ALL SAFETY GLASS MATERIALS (INDIVIDUAL PANES) ARE TO BE PERMANENTLY MARKED AND ALL MARKS TO BE VISIBLE AFTER GLAZING, FOR ARCHITECTS APPROVAL

IRONMONGERY

GENERAL: IRONMONGERY TO INCLUDE STANDARD FACTORY FITTINGS INCLUDING FRICTION STAYS, PROJECT OUT SASH HARDWARE, GLAZING GASKETS AND SEALS SUITABLE FOR 6.38mm SAFETY GLASS. TO BE APPROVED BY ARCHITECT OR AS PER IRONMONGERY SCHEDULE.

BURGLAR BARS: AS PER BURGLAR BAR SCHEDULE - TYPE BB06

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.:
Township: MOTHERWELL

Drawing Title: WINDOW TYPES
TYPE WT14

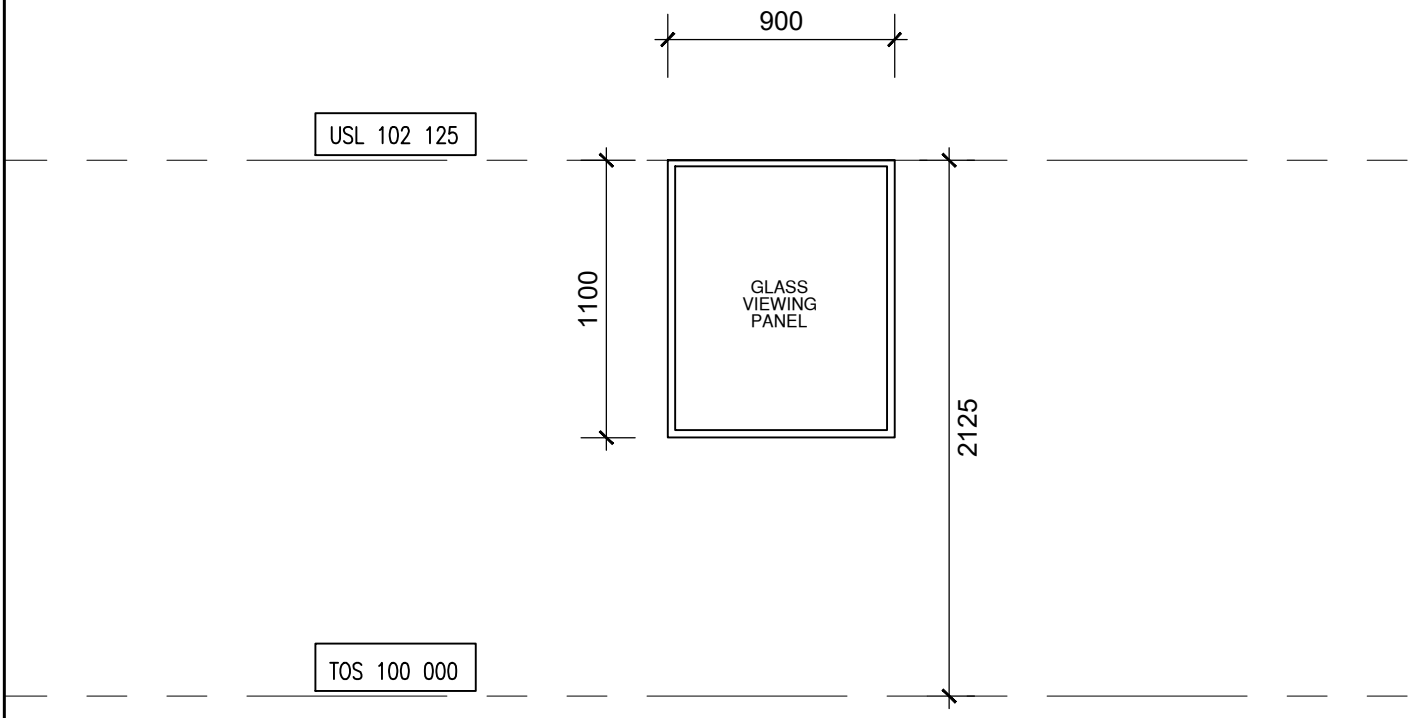
Scale: N/A *Date:* 2024-01-12 *Drawn:* MS

Drawing No.: 3239_WS14 *Revision* -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

All dimensions to be checked on site before any work is put in hand. Refer any discrepancies to the architect.



ALUMINIUM SHOP FRONTS:

ALL UNITS TO BE MANUFACTURED IN STRICT ACCORDANCE WITH ALL AAAMSA , GOVERNMENT AND LOCAL AUTHORITY REQUIREMENTS

- ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO MANUFACTURE
- SHOP DRAWINGS ARE TO BE SUBMITTED FOR ARCHITECTS APPROVAL PRIOR TO MANUFACTURE
- ANY DISCREPANCIES BETWEEN SCHEDULES AND PLANS ARE TO BE REPORTED TO ARCHITECTS IMMEDIATELY

SUBCONTRACTORS:

- SUBCONTRACTORS CAN USE THEIR OWN SECTIONS BUT ARE REQUIRED TO SUBMIT ALL SABS AND AAAMSA TEST RESULTS PRIOR TO MANUFACTURE AND TO GET ARCHITECTS APPROVAL
- SUBCONTRACTORS ARE RESPONSIBLE FOR THE STRUCTURAL DESIGN OF ALL UNITS
- SUBCONTRACTORS ARE RESPONSIBLE FOR OBTAINING WATER TESTS ON UNITS (ALL AS PER SABS AND AAAMSA REQUIREMENTS)
- SUBCONTRACTORS ARE RESPONSIBLE FOR ALL SEALERS AROUND ALL UNITS AT JUNCTIONS TO WALLS SILLS ETC.
- CONTRACTOR TO ALLOW FOR ALL NECESSARY CUT-OUTS FOR LOCKS AND DOOR MONITORING MECHANISMS ETC
- SUBCONTRACTORS IS TO ALLOW FOR ALL NECESSARY TOLERANCES

GLAZING:

- ALL GLAZING IS TO BE DONE IN STRICT ACCORDANCE WITH ALL SABS 0137 (REFER TO SAGGA AND AAAMSA GENERAL SPECIFICATIONS AND SELECTION GUIDES)
- ALL SAFETY GLAZING MATERIALS (INDIVIDUAL PANES) ARE TO BE PERMANENTLY MARKED AND ALL MARKS TO BE VISIBLE AFTER GLAZING
- 6.38MM CLEAR SAFETY GLAZING THROUGHOUT AS PER PART N - GLAZING OF SANS 10400.
- ALL WINDOWS AND GLAZED DOORS TO HAVE SQUARE GLAZING BEADING
- ALL GLAZING TO BE SAFETY GLAZING AND IS TO BE DONE IN STRICT ACCORDANCE WITH ALL GOVERNMENT REQUIREMENTS CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DEVIATIONS FROM THE REQUIREMENTS
- ALL OPENING WINDOWS AND DOORS TO BE FITTED WITH DUST SEALS TO ARCHITECTS APPROVAL

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC ALTERATIONS AND ADDITIONS

Stand No.:

Township: MOTHERWELL

Drawing Title: WINDOW TYPES TYPE WT15

Scale: N/A Date: 2024-01-12 Drawn: MS

Drawing No.: 3239_WS15 Revision -

Rev:	Date:	By:	Description:
-	2024-01-12	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

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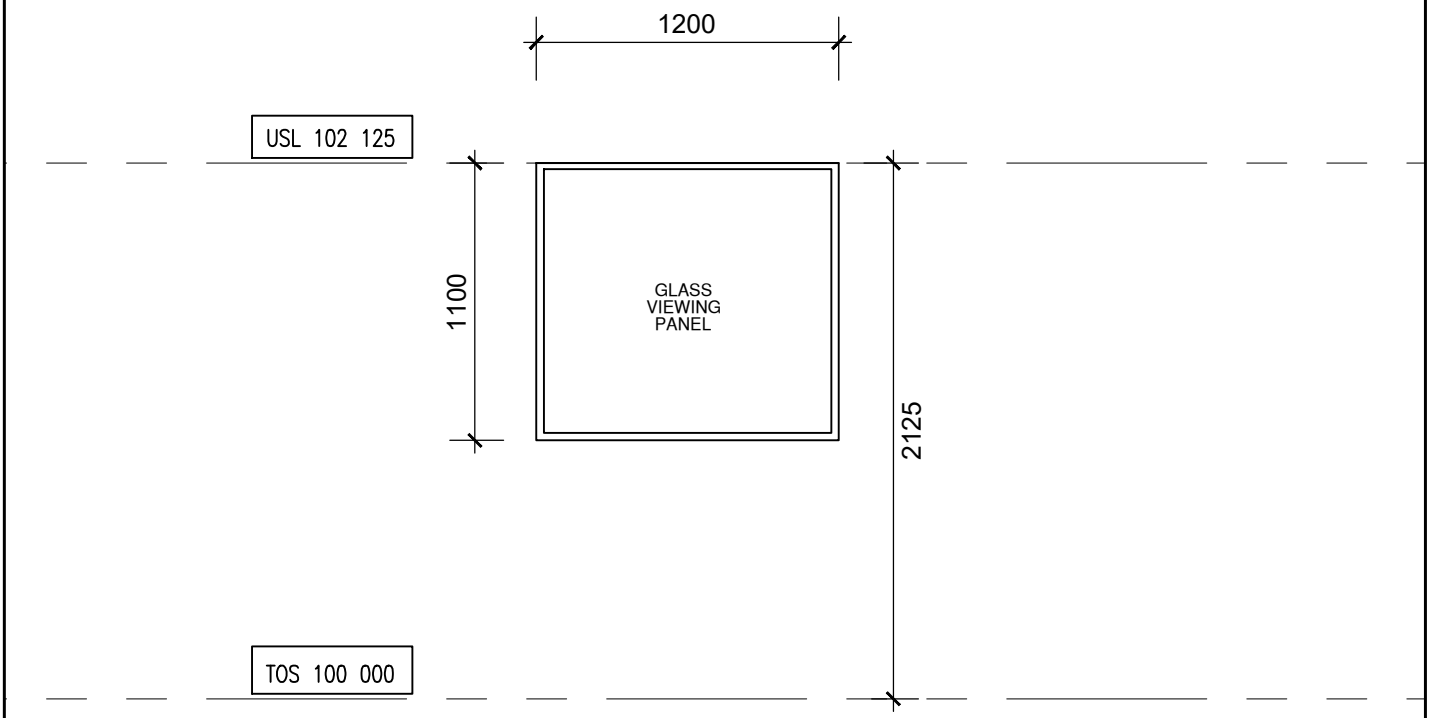

ALUMINIUM SHOP FRONTS:

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- ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO MANUFACTURE
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- ANY DISCREPANCIES BETWEEN SCHEDULES AND PLANS ARE TO BE REPORTED TO ARCHITECTS IMMEDIATELY

SUBCONTRACTORS:

- SUBCONTRACTORS CAN USE THEIR OWN SECTIONS BUT ARE REQUIRED TO SUBMIT ALL SABS AND AAAMSA TEST RESULTS PRIOR TO MANUFACTURE AND TO GET ARCHITECTS APPROVAL
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- SUBCONTRACTORS ARE RESPONSIBLE FOR OBTAINING WATER TESTS ON UNITS (ALL AS PER SABS AND AAAMSA REQUIREMENTS)
- SUBCONTRACTORS ARE RESPONSIBLE FOR ALL SEALERS AROUND ALL UNITS AT JUNCTIONS TO WALLS SILLS ETC.
- CONTRACTOR TO ALLOW FOR ALL NECESSARY CUT-OUTS FOR LOCKS AND DOOR MONITORING MECHANISMS ETC
- SUBCONTRACTORS IS TO ALLOW FOR ALL NECESSARY TOLERANCES

GLAZING:

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- ALL OPENING WINDOWS AND DOORS TO BE FITTED WITH DUST SEALS TO ARCHITECTS APPROVAL

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

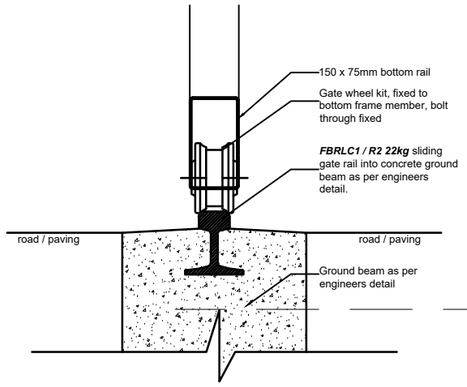
Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.:
Township: MOTHERWELL

Drawing Title: WINDOW TYPES
TYPE WT15a

Scale: N/A *Date:* 2024-01-12 *Drawn:* MS

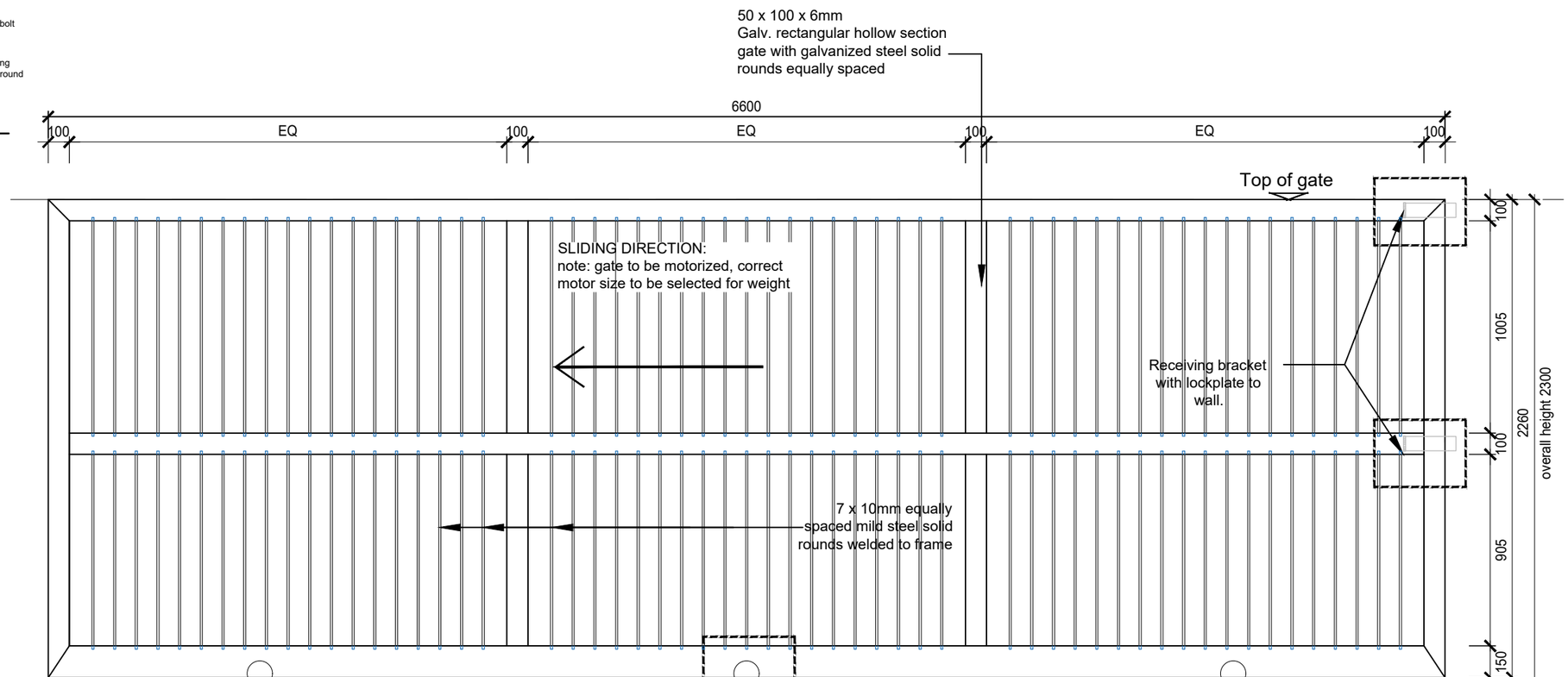
Drawing No.: 3239_WS15a *Revision* -



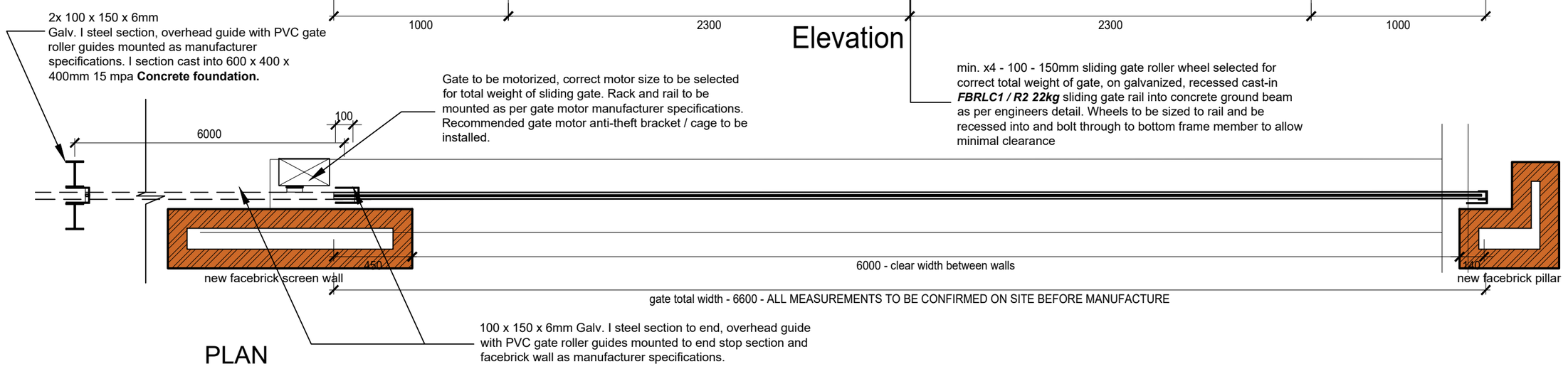
Gate rail detail

NO. OFF GATES X 2

MIRRORED LAYOUT



Elevation



PLAN

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.: -
Township: MOTHERWELL

Rev:	Date:	By:	Description:
-	2024-01-15	WC	ISSUED FOR MEASURE

Drawing Title: GATE SCHEDULE
TYPE GT.01

Scale: N/A Date: 2024-01-15 Drawn: WC

Drawing No.: 3239_GT.01 Revision -

Rev:	Date:	By:	Description:
-	2024-01-15	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

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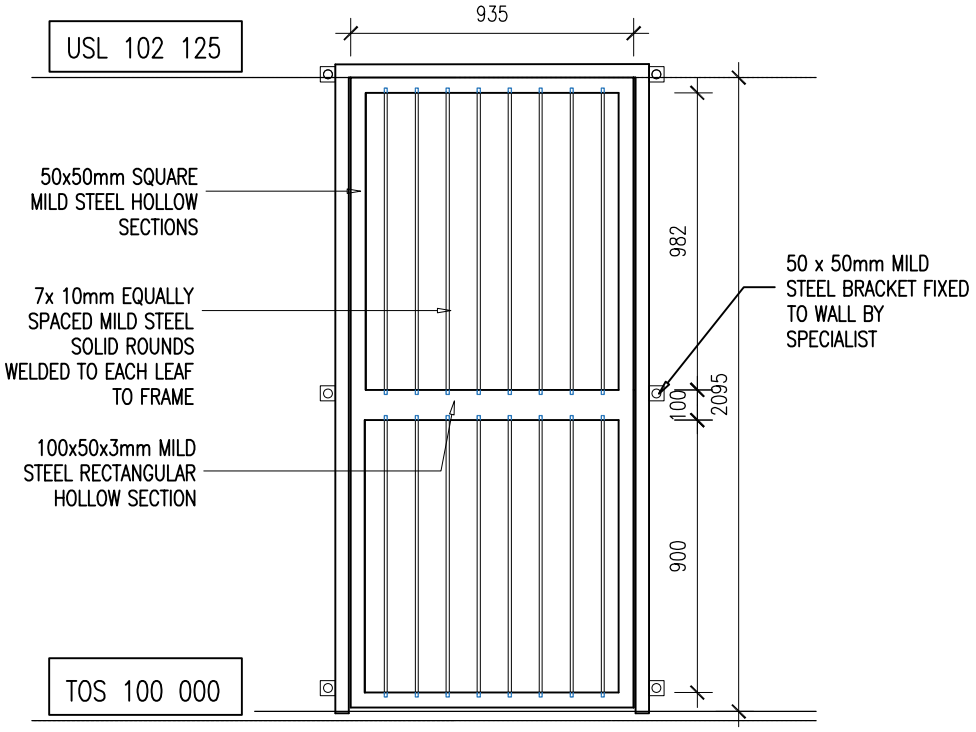

NOTE:
- SHOP DRAWINGS ARE TO BE SUBMITTED FOR ARCHITECTURAL APPROVAL PRIOR TO MANUFACTURE
- DOOR WIDTH TO BE CHECKED AGAINST WALL OPENING SIZES

FRAME

DESCRIPTION: 50x50 SHS FRAME WITH BRACKET AND BOLTED TO WALL OVER DOOR, 100x50 MILD STEEL RHS GATE LEAF WITH BARRED INFILL AS PER DETAIL

FINISH: AS PER PAINT SCHEDULE - APPLY ONE (1) COAT GALVOGRIP CALCIUM PLUMBATE PRIMER FOLLOWED BY ONE (1) COAT UNIVERSAL UNDERCOAT AND TWO (2) COATS PLASCON VELVAGLO SATIN ENAMEL PAINT.

INFILL

DESCRIPTION: 10mm EQUALLY SPACED MILD STEEL SOLID ROUND BARS WELDED TO FRAME, MAX 110mm SPACING BETWEEN BARS AS PER DETAIL

IRONMONGERY

GENERAL: NEW LOCKPLATES AND PADLOCKS TO BE SUPPLIED. ACCESS CONTROL AS PER ELECTRICAL AND MECHANICAL ENGINEER

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC ALTERATIONS AND ADDITIONS

Stand No.:
Township: MOTHERWELL

Drawing Title: GATE SCHEDULE TYPE GT.02

Scale: N/A *Date:* 2024-01-15 *Drawn:* WC

Drawing No.: 3239_GT.02 *Revision* -

Rev:	Date:	By:	Description:
-	2024-01-15	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

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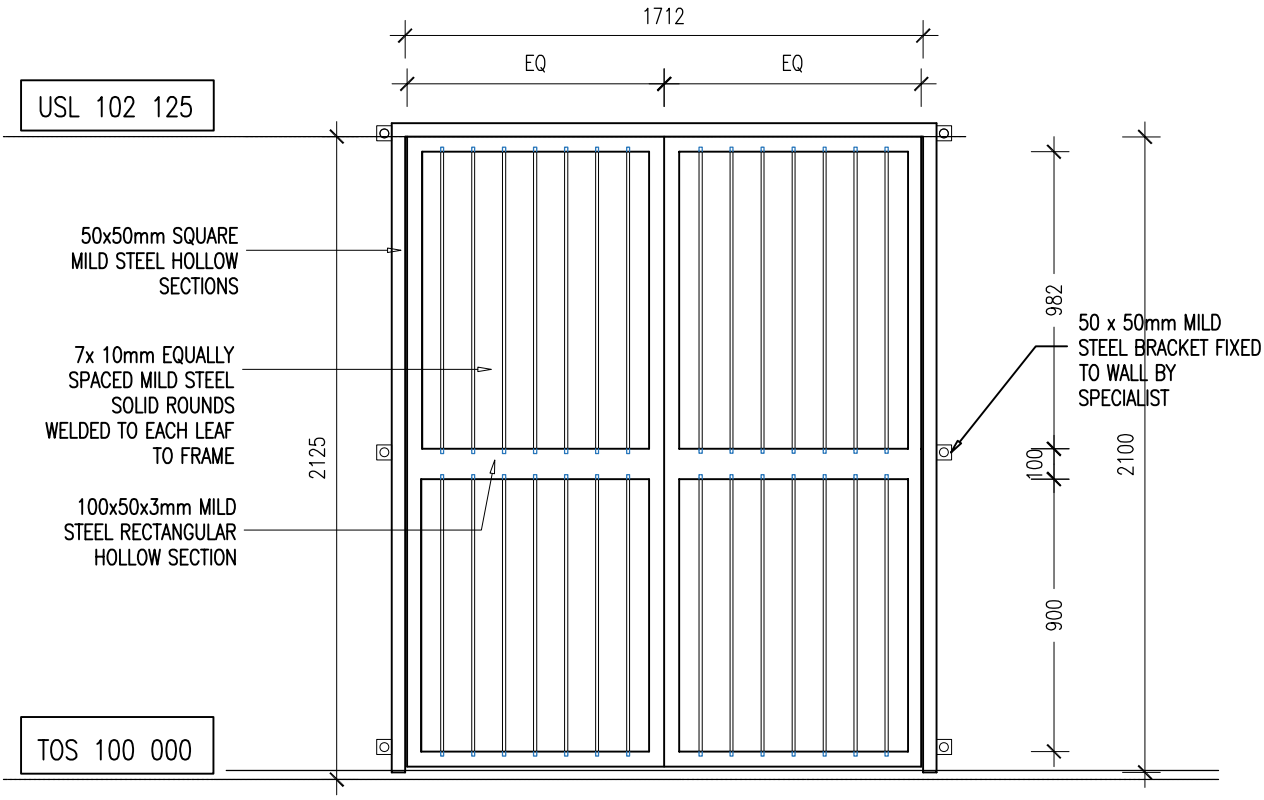

NOTE:

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- DOOR WIDTH TO BE CHECKED AGAINST WALL OPENING SIZES

FRAME

DESCRIPTION: 50x50 SHS FRAME WITH BRACKET AND BOLTED TO WALL OVER DOOR, 100x50 MILD STEEL RHS GATE LEAF WITH BARRED INFILL AS PER DETAIL

FINISH: AS PER PAINT SCHEDULE - APPLY ONE (1) COAT GALVOGRIP CALCIUM PLUMBATE PRIMER FOLLOWED BY ONE (1) COAT UNIVERSAL UNDERCOAT AND TWO (2) COATS PLASCON VELVAGLO SATIN ENAMEL PAINT.

INFILL

DESCRIPTION: 10mm EQUALLY SPACED MILD STEEL SOLID ROUND BARS WELDED TO FRAME, MAX 110mm SPACING BETWEEN BARS AS PER DETAIL

IRONMONGERY

GENERAL: NEW LOCKPLATES AND PADLOCKS TO BE SUPPLIED. ACCESS CONTROL AS PER ELECTRICAL AND MECHANICAL ENGINEER

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC ALTERATIONS AND ADDITIONS

Stand No.:

Township: MOTHERWELL

Drawing Title: GATE SCHEDULE TYPE GT.04

Scale: N/A *Date:* 2024-01-15 *Drawn:* WC

Drawing No.: 3239_GT.04 *Revision* -

Rev:	Date:	By:	Description:
-	2024-01-15	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

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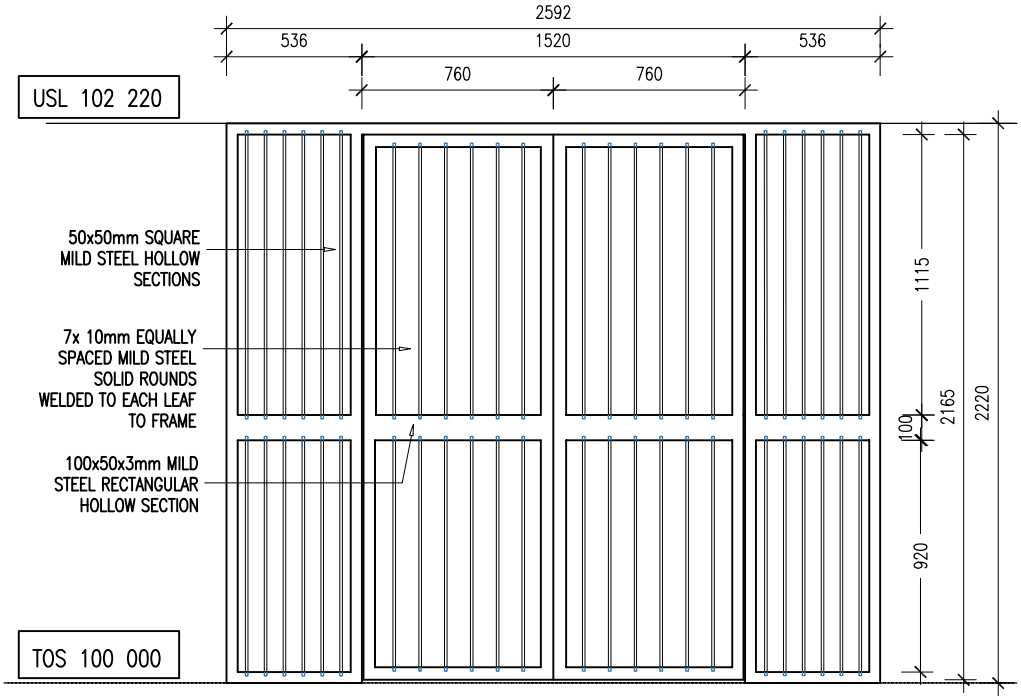

NOTE:
- SHOP DRAWINGS ARE TO BE SUBMITTED FOR ARCHITECTURAL APPROVAL PRIOR TO MANUFACTURE
- DOOR WIDTH TO BE CHECKED AGAINST WALL OPENING SIZES

FRAME

DESCRIPTION: 50x50 SHS FRAME WITH BRACKET AND BOLTED TO WALL OVER DOOR, 100x50 MILD STEEL RHS GATE LEAF WITH BARRED INFILL AS PER DETAIL

FINISH: AS PER PAINT SCHEDULE - APPLY ONE (1) COAT GALVOGRIP CALCIUM PLUMBATE PRIMER FOLLOWED BY ONE (1) COAT UNIVERSAL UNDERCOAT AND TWO (2) COATS PLASCON VELVAGLO SATIN ENAMEL PAINT.

INFILL

DESCRIPTION: 10mm EQUALLY SPACED MILD STEEL SOLID ROUND BARS WELDED TO FRAME, MAX 110mm SPACING BETWEEN BARS AS PER DETAIL

IRONMONGERY

GENERAL: NEW LOCKPLATES AND PADLOCKS TO BE SUPPLIED. ACCESS CONTROL AS PER ELECTRICAL AND MECHANICAL ENGINEER

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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC ALTERATIONS AND ADDITIONS

Stand No.:
Township: MOTHERWELL

Drawing Title: GATE SCHEDULE TYPE GT.09

Scale: N/A *Date:* 2024-01-15 *Drawn:* ME

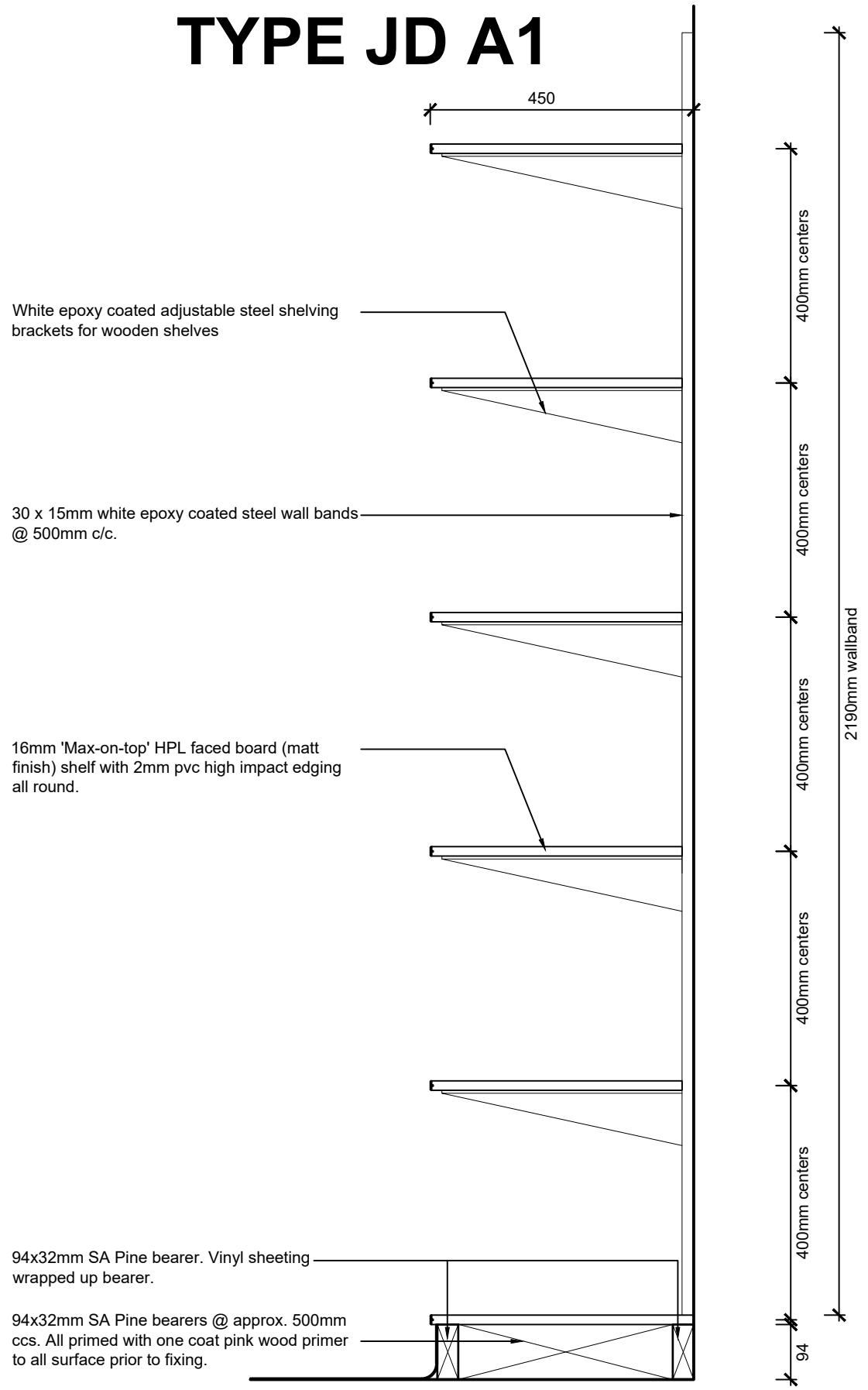
Drawing No.: 3239_GT.09 *Revision* -

Rev:	Date:	By:	Description:
-	2023-11-06	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

All dimensions to be checked on site before any work is put in hand. Refer any discrepancies to the architect.

TYPE JD A1



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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.: ??
Township: MOTHERWELL, PORT ELIZABETH

Drawing Title: JOINERY TYPES
TYPE JD A1

Scale: 1:10 *Date:* 2023-11-06 *Drawn:* WC

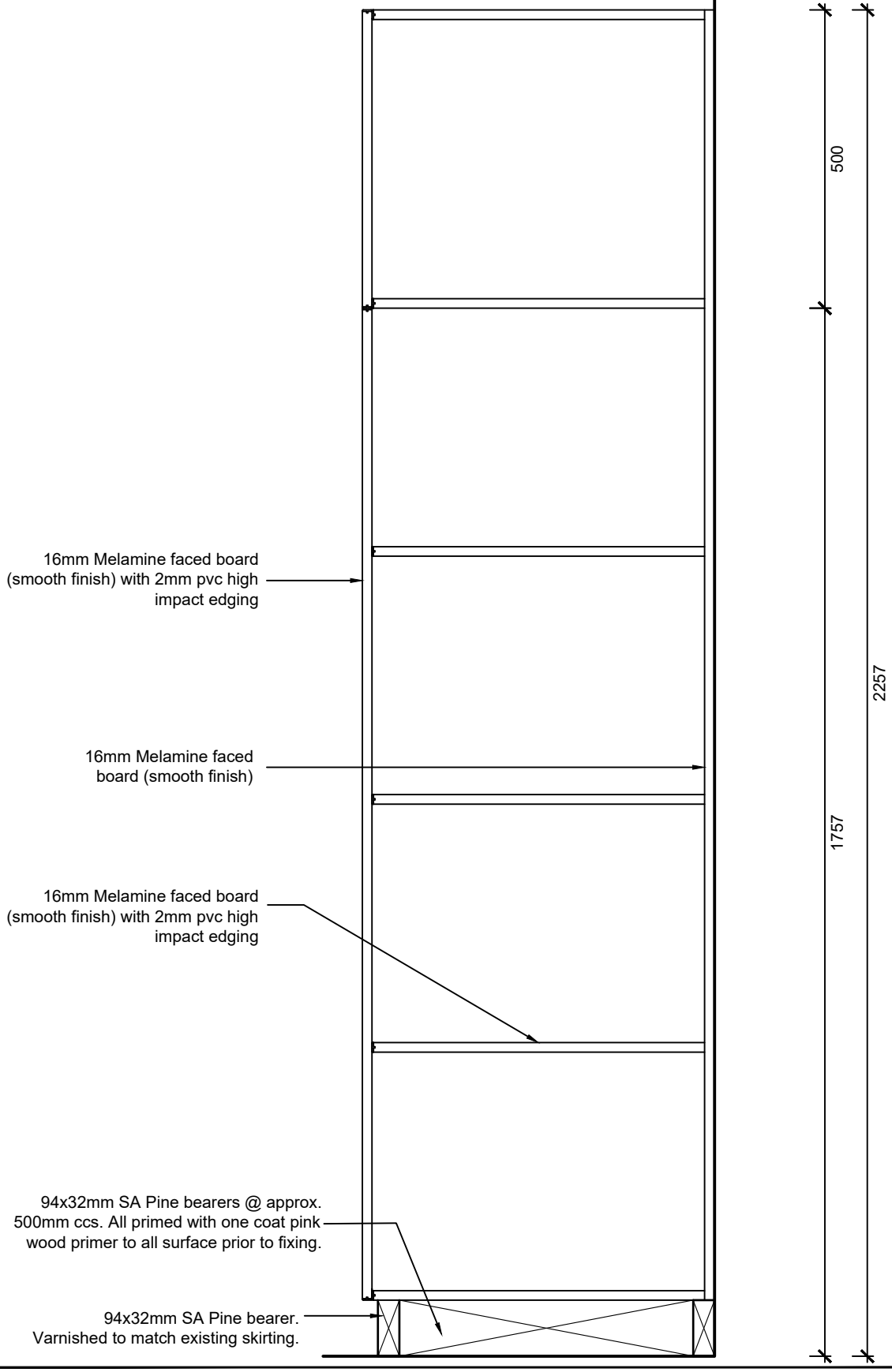
Drawing No.: 3239_JD01 *Revision* -

Rev:	Date:	By:	Description:
-	2023-11-06	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

All dimensions to be checked on site before any work is put in hand. Refer any discrepancies to the architect.

TYPE JD A5



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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC ALTERATIONS AND ADDITIONS

Stand No.: ??

Township: MOTHERWELL, PORT ELIZABETH

Drawing Title: JOINERY TYPES TYPE JD A5

Scale: 1:10 *Date:* 2023-11-06 *Drawn:* WC

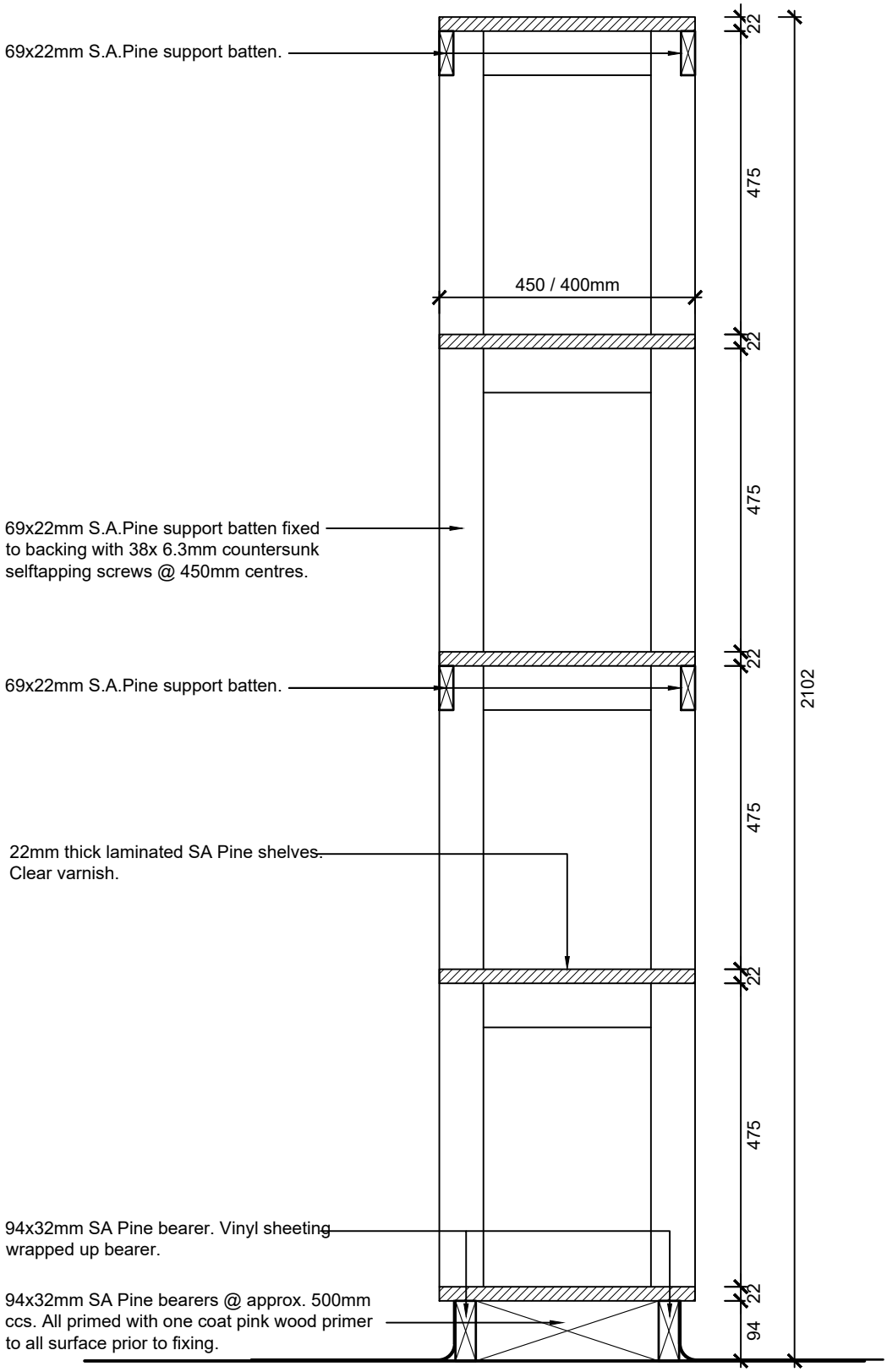
Drawing No.: 3239_JD05 *Revision* -

Rev:	Date:	By:	Description:
-	2023-11-06	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

All dimensions to be checked on site before any work is put in hand. Refer any discrepancies to the architect.

TYPE JD A6



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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.: ??
Township: MOTHERWELL, PORT ELIZABETH

Drawing Title: JOINERY TYPES
TYPE JD A6

Scale: 1:10 *Date:* 2023-11-06 *Drawn:* WC

Drawing No.: 3239_JD06 *Revision* -

Rev:	Date:	By:	Description:
-	2023-11-06	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

All dimensions to be checked on site before any work is put in hand. Refer any discrepancies to the architect.

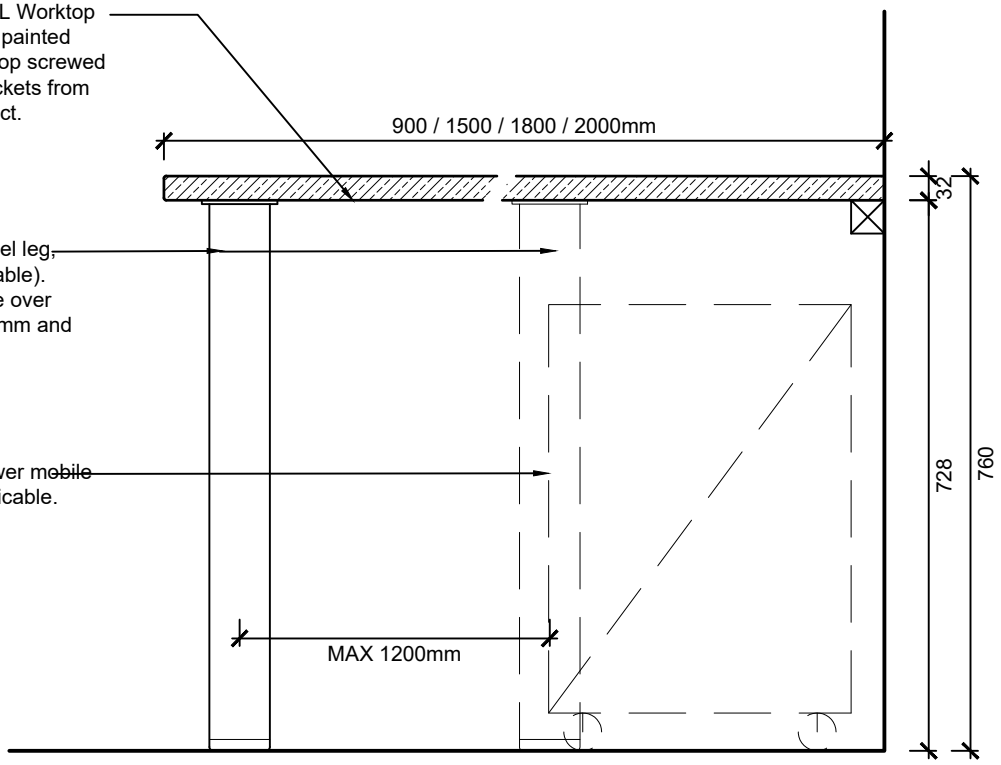
TYPE JD B6

44 x 44mm H/W support raill fixed to wall with 6 x 100 Eureka easy fit wall anchors, at max 300mm ccs, sprayed with polyurethane, colour by Architect. All unseen edges to be painted with pink wood primer.

600 x 32mm 'Max-on-top' HPL Worktop All cuts and rear edges to be painted with pink wood primer. Worktop screwed and fixed to support rails/brackets from below. Colour: as per architect.

710mm high X 80mm dia. steel leg, chrome plated (30mm adjustable). Additional support legs centre over length for desk worktop 1500mm and over, at max 1200mm.

400 x 550 x 590mm four drawer mobile pedestal in white, where applicable.



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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC ALTERATIONS AND ADDITIONS

Stand No.: ??

Township: MOTHERWELL, PORT ELIZABETH

Drawing Title: JOINERY TYPES TYPE JD B6

Scale: 1:10 Date: 2023-11-06 Drawn: WC

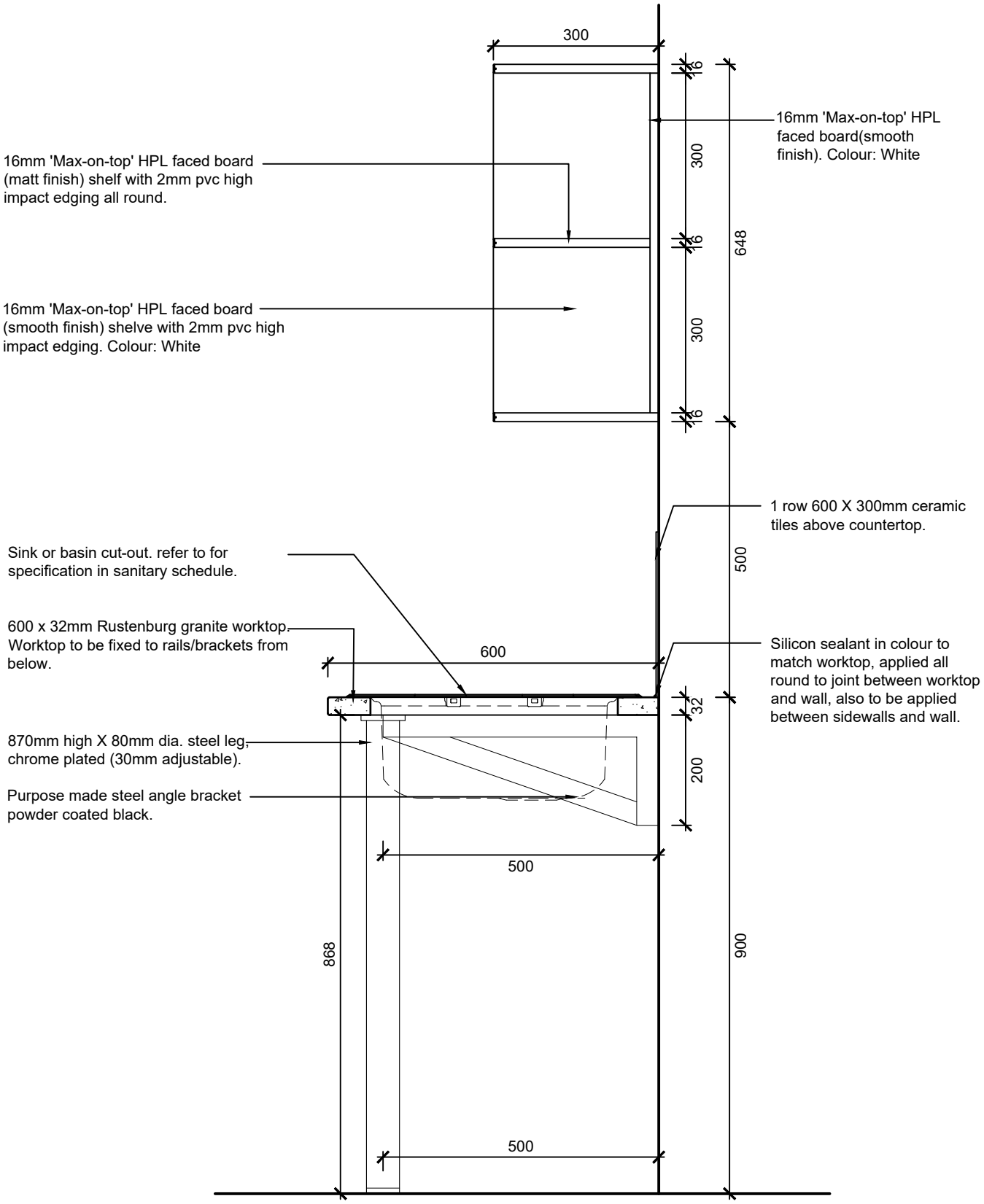
Drawing No.: 3239_JD13 Revision -

Rev:	Date:	By:	Description:
-	2023-11-06	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

All dimensions to be checked on site before any work is put in hand. Refer any discrepancies to the architect.

TYPE JD C2



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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC ALTERATIONS AND ADDITIONS

Stand No.: ??

Township: MOTHERWELL, PORT ELIZABETH

Drawing Title: JOINERY TYPES TYPE JD C2

Scale: 1:10 *Date:* 2023-11-06 *Drawn:* WC

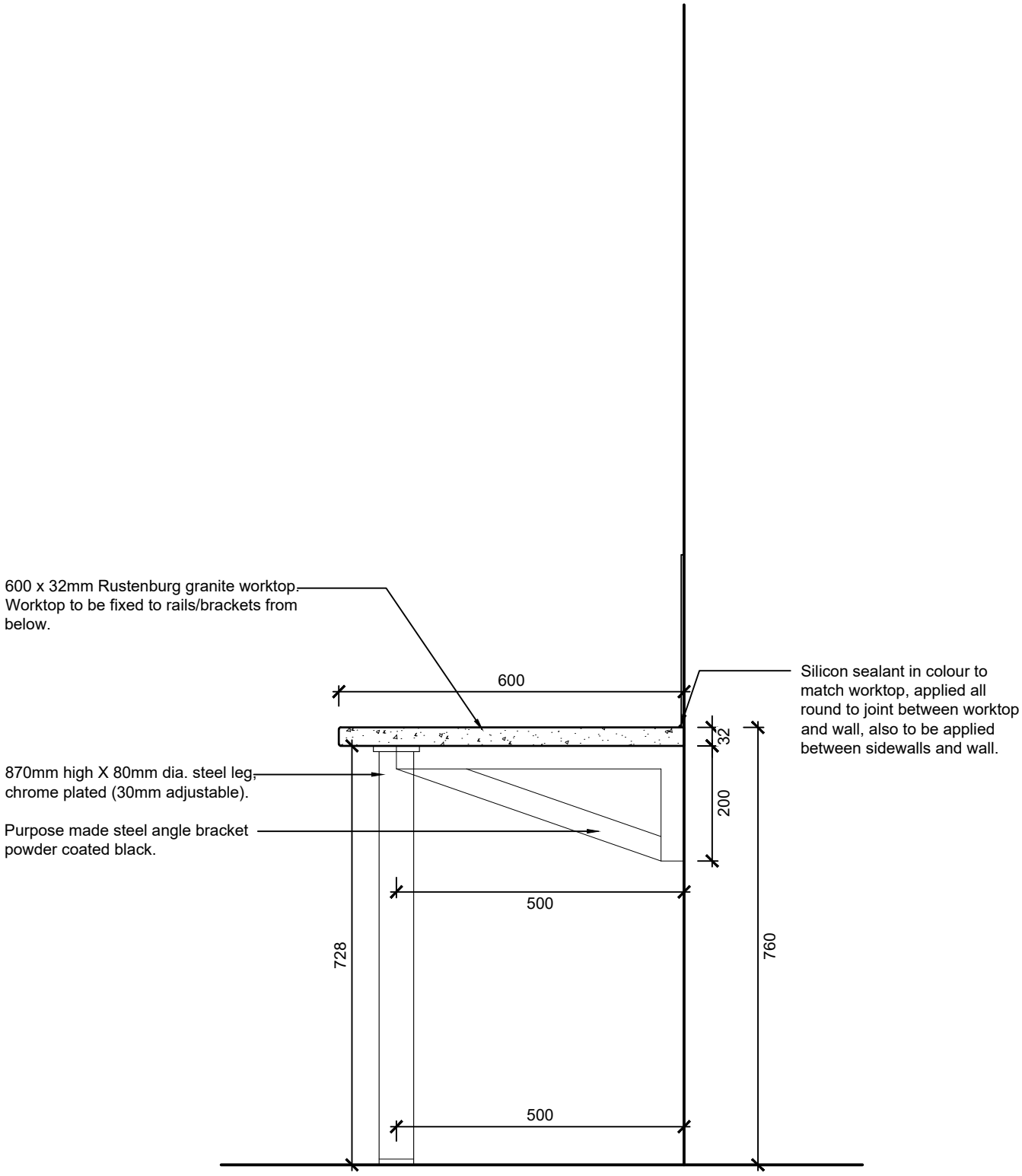
Drawing No.: 3239_JD23 *Revision* -

Rev:	Date:	By:	Description:
-	2023-11-06	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

All dimensions to be checked on site before any work is put in hand. Refer any discrepancies to the architect.

TYPE JD C8



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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.: ??
Township: MOTHERWELL, PORT ELIZABETH

Drawing Title: JOINERY TYPES
TYPE JD C8

Scale: 1:10 *Date:* 2023-11-06 *Drawn:* WC

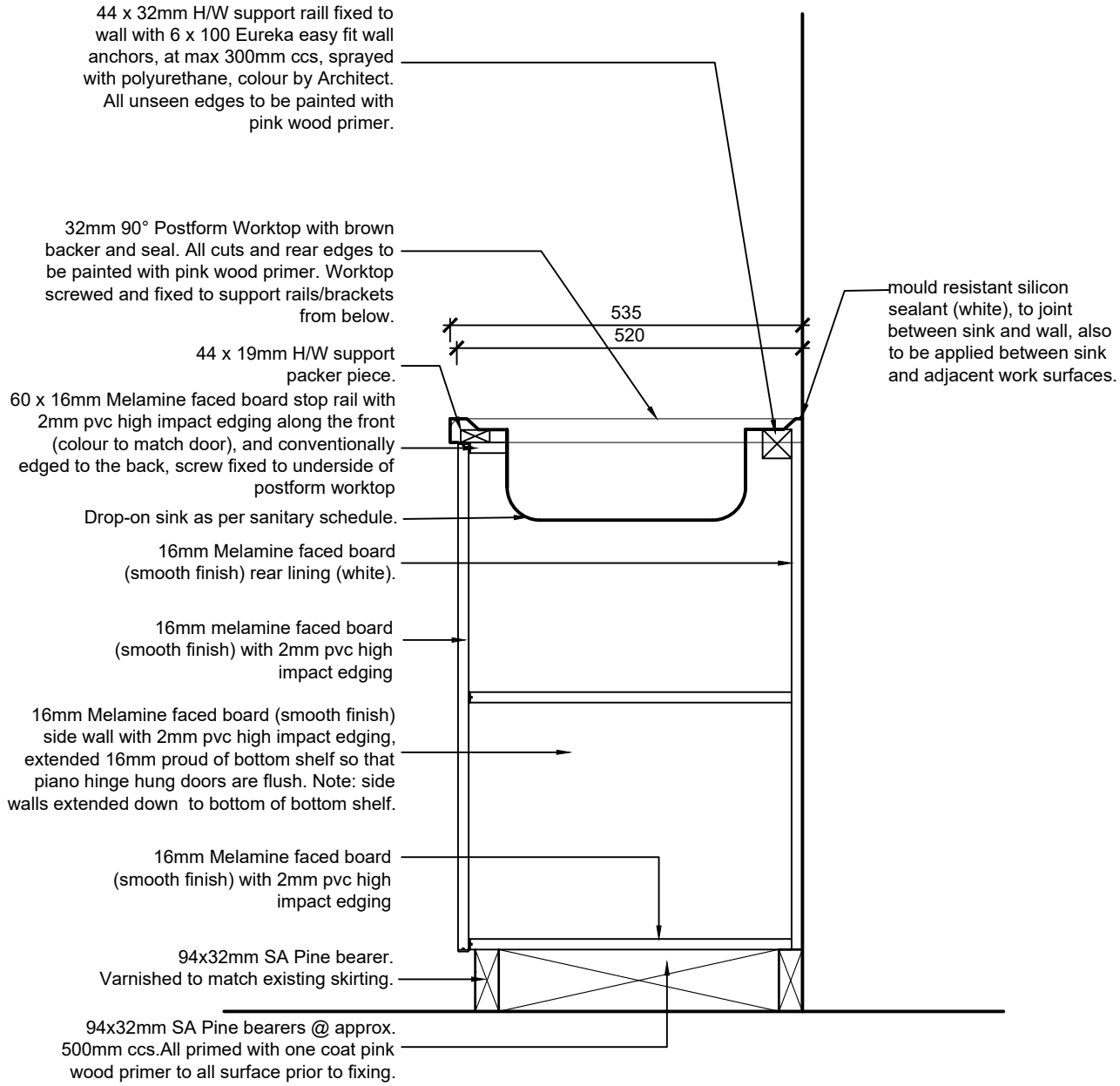
Drawing No.: 3239_JD29 *Revision* -

Rev:	Date:	By:	Description:
-	2023-11-06	WC	ISSUED FOR MEASURE

Rev:	Date:	By:	Description:

All dimensions to be checked on site before any work is put in hand. Refer any discrepancies to the architect.

TYPE JD C9



BNM ARCHITECTS PROJECT MANAGERS
Brinkman Ndayi McAll (Pty) Ltd
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address suite 1 lyndon, 114 park drive, central, pe, 6001
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Province of the EASTERN CAPE HEALTH

Client: DEPARTMENT OF HEALTH

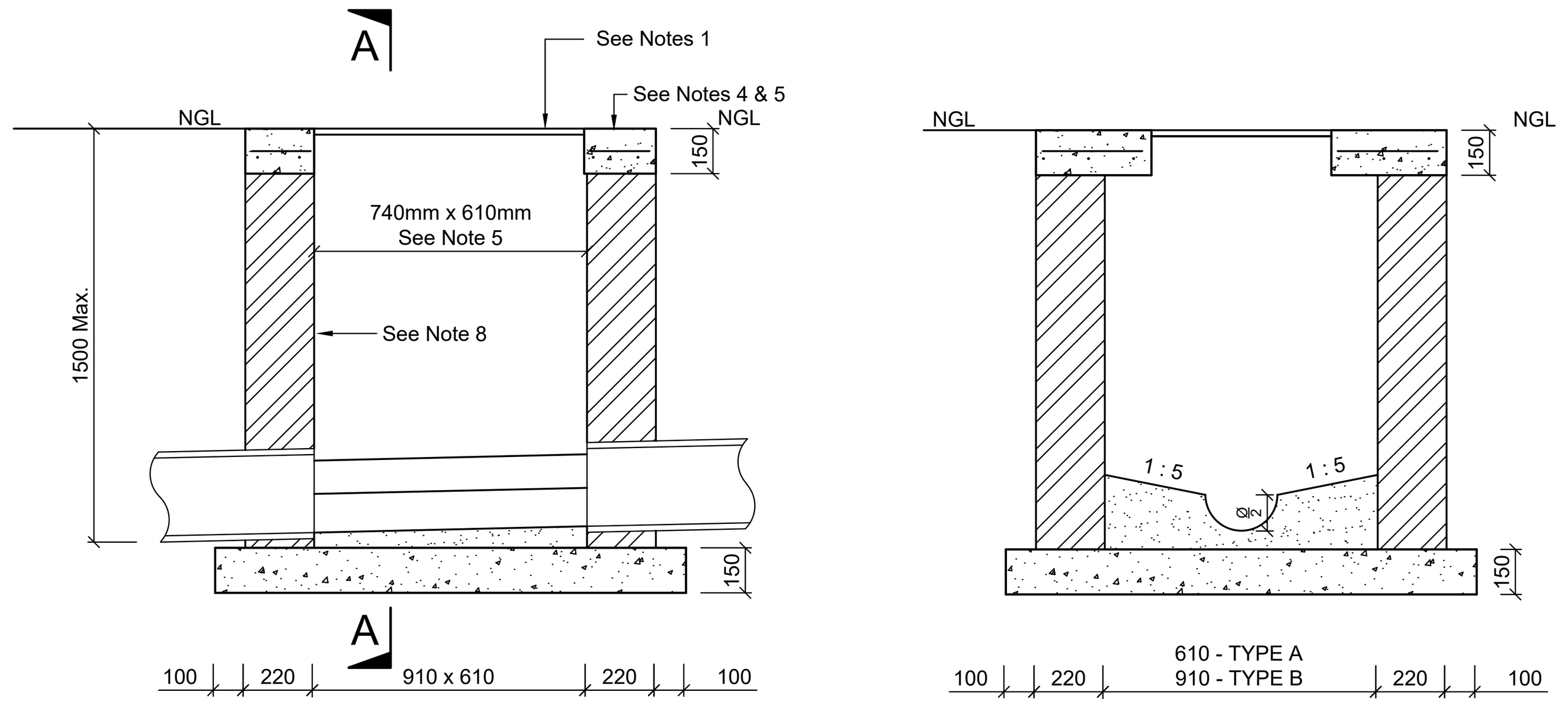
Project: MOTHERWELL CHC
ALTERATIONS AND ADDITIONS

Stand No.: ??
Township: MOTHERWELL, PORT ELIZABETH

Drawing Title: JOINERY TYPES
TYPE JD C9

Scale: 1:10 *Date:* 2023-11-06 *Drawn:* WC

Drawing No.: 3239_JD30 *Revision* -

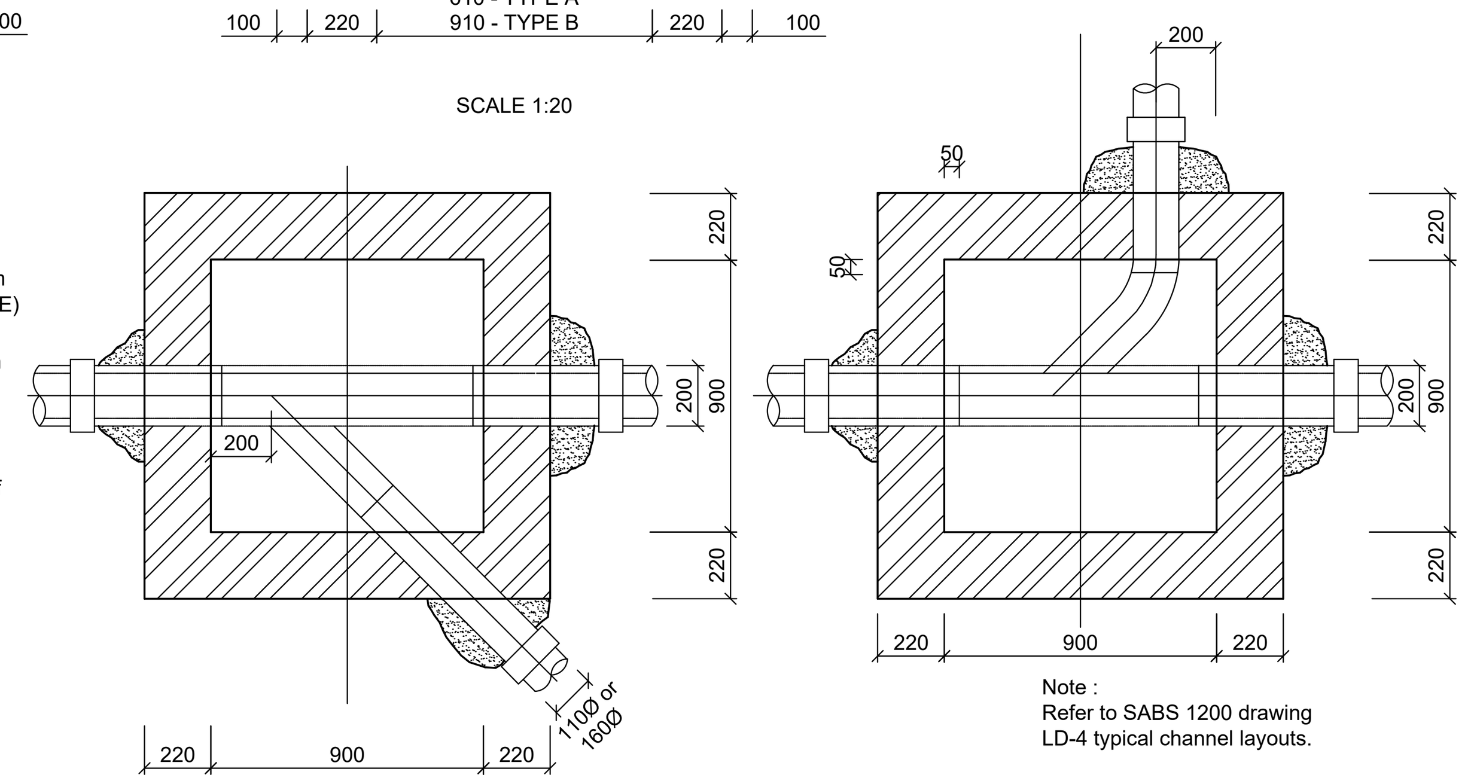


SCALE 1:20

SCALE 1:20

NOTES:

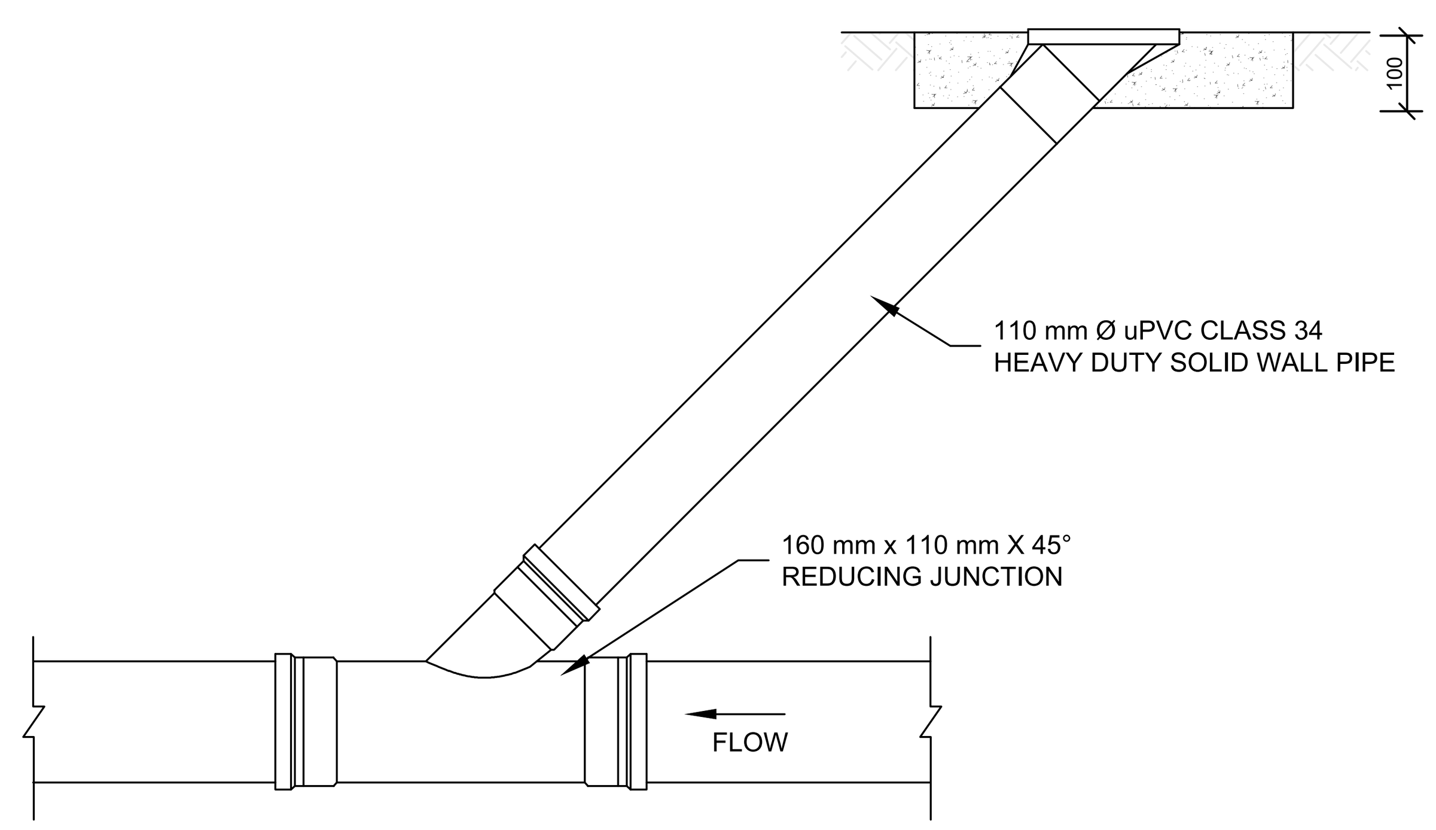
1. Manhole cover to be 600 x 900mm cast iron cover and frame.
2. "Calcamite" step irons to be provided in manholes >1,5m deep
3. Step irons to be staggered at 300mm crs vertically and 200mm crs horizontally. Starting 500mm below cover level
4. All cover slabs to be reinforced with r12 bars at 150 crs both ways with 30mm cover to bottom of slab
5. Opening In cover slabs to be offset to one corner
6. Benching to be min. 20mm thick using 1:3 cement mortar
7. All concrete to be 25 MPa
8. All manholes to be plastered internally
9. Manholes to be constructed from engineering bricks (SABS1200LE) and laid in english bond.
10. Internal walls of manholes which are opposite to drop inlets, with pipe diameters of 300mm or greater, are to be plastered 20mm thick, and mesh reinforced from the overt level of the inlet pipe to the base of the manhole.
11. For EPWP Projects, bricks manufactured on site are acceptable if constructed to engineering grade SABS 227 or concrete masonary complying with the requirements of SABS 1215 nominal compressive strength of 14MPa solid units.



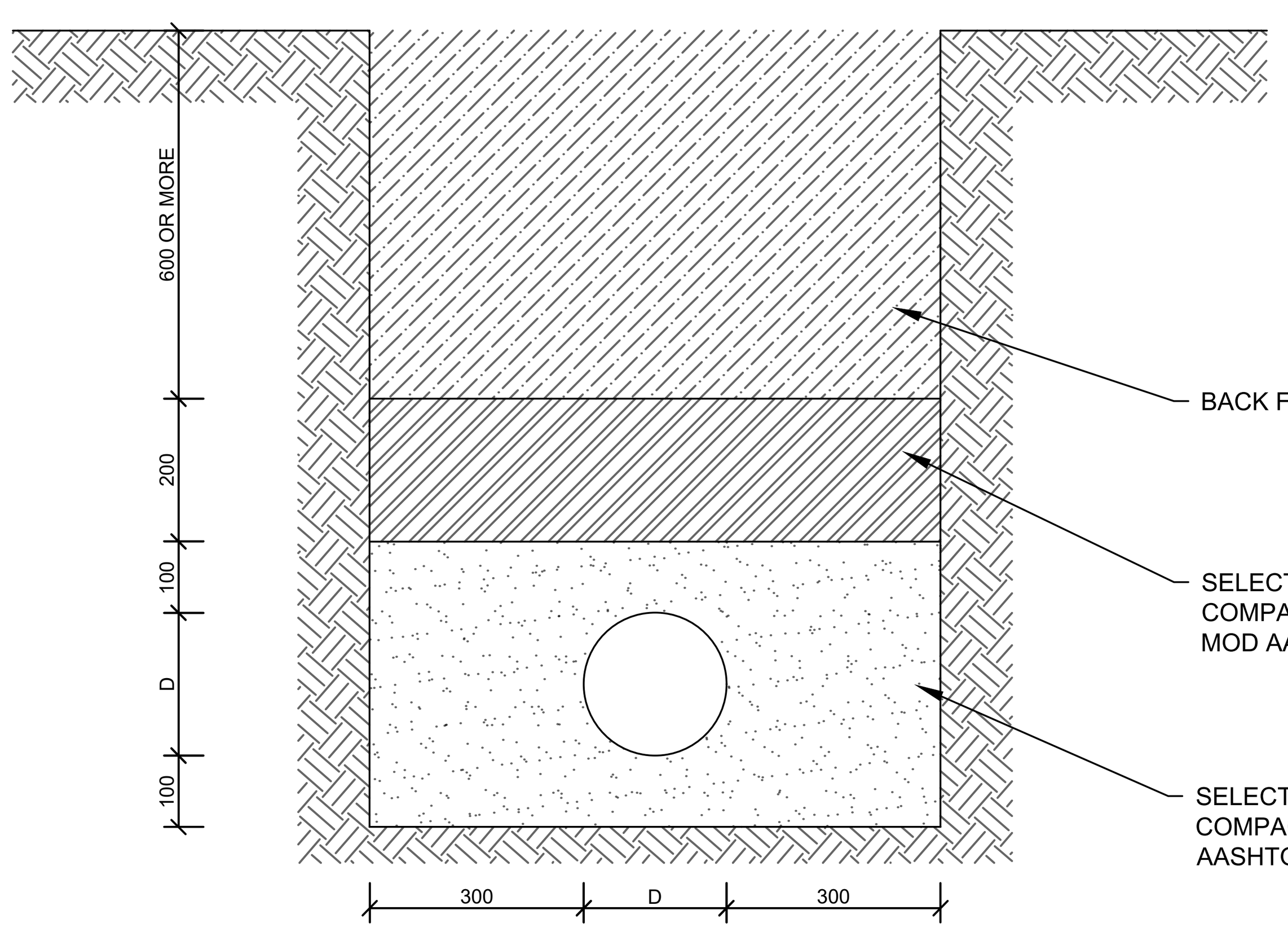
TYPICAL SECTIONAL PLAN

TYPICAL SECTIONAL PLAN

BRICK MANHOLE DETAIL
SCALE 1:20



TYPICAL RODDING EYE DETAIL
SCALE 1:10



TYPICAL TRENCH DETAIL
SCALE 1:10

FOR INFORMATION

Amendments

Rev.	Date	Description	Initials
0	FEB 2024	FOR INFORMATION	E.D.T

Drawing notes

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16. THE MINIMUM COVER FOR STORMWATER PIPES IS 0.6m
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Service authority approval

Position	Name	Date	Signature

Client(s)

health
Department: Health
REPUBLIC OF SOUTH AFRICA

Signature ______________ Date ______

Client Drawing No.: | Sht | Of

Project title

MOTHERWELL CHC

Drawing title

CIVIL SERVICES:
SEWER DETAILS

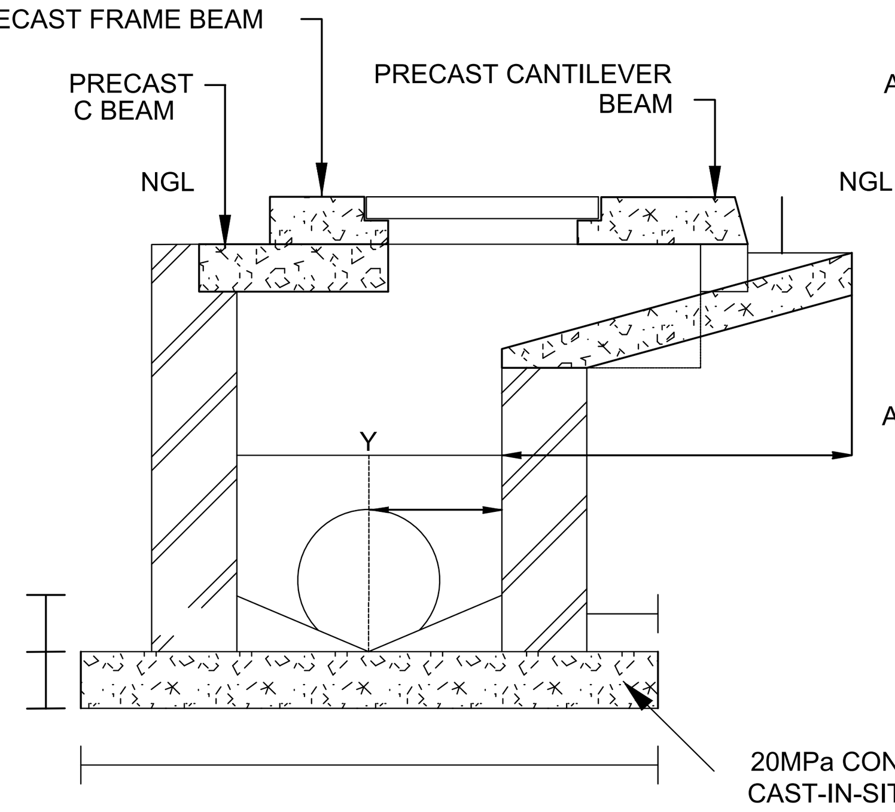
Scale: 1:250 Co-ordinate System:
Paper Size: A1 WGS 84 - LO25

SMEC
Member of the Surbana Jurong Group

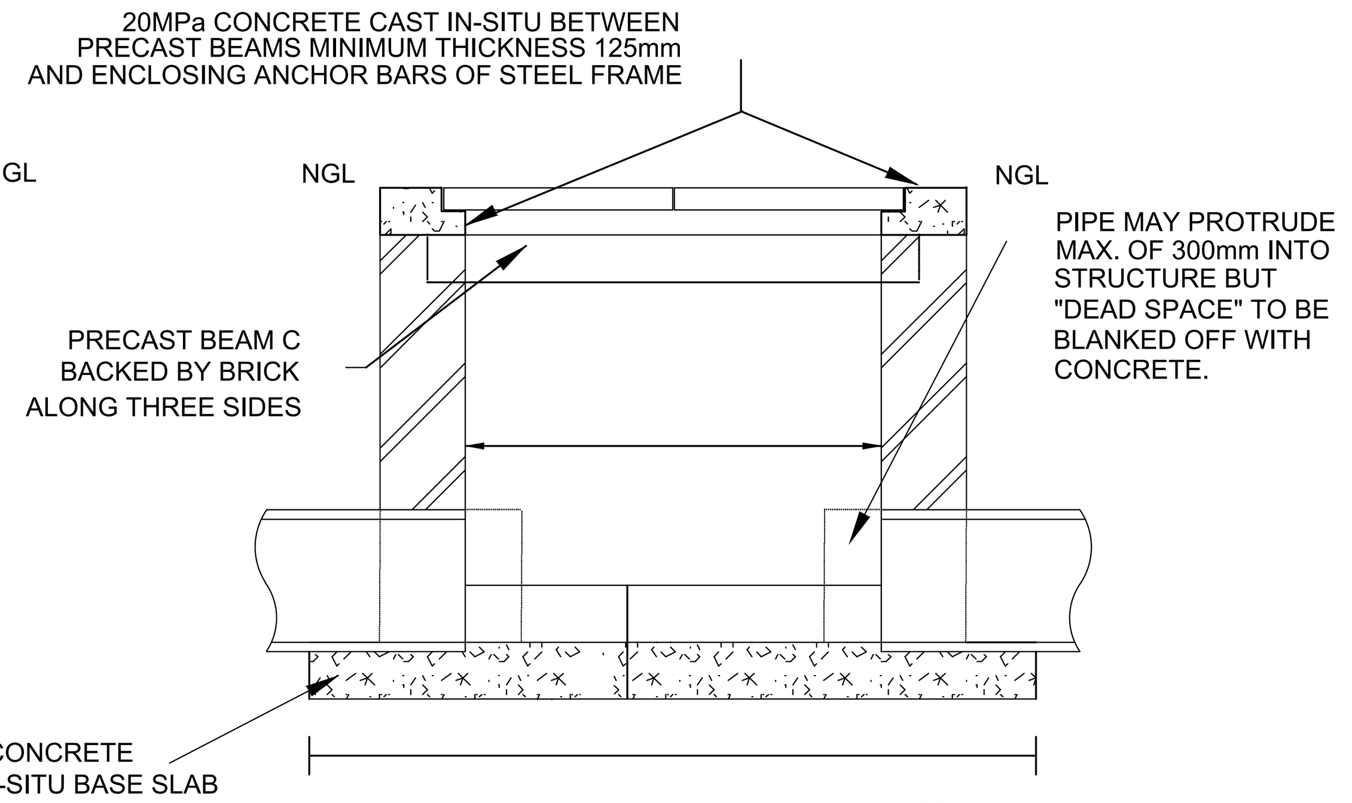
PR ______
Signature ________________ Date ______

Process	Name	Date	Signature
Designed	E. DU TOIT		
Checked	D. SHARP		
Verified	J.KAMPMAN		
Drawn	E. DU TOIT		
Checked	D.SHARP		

SMEC Drawing No.: EC0034-MTH-SEW-DET-021
Rev: 00

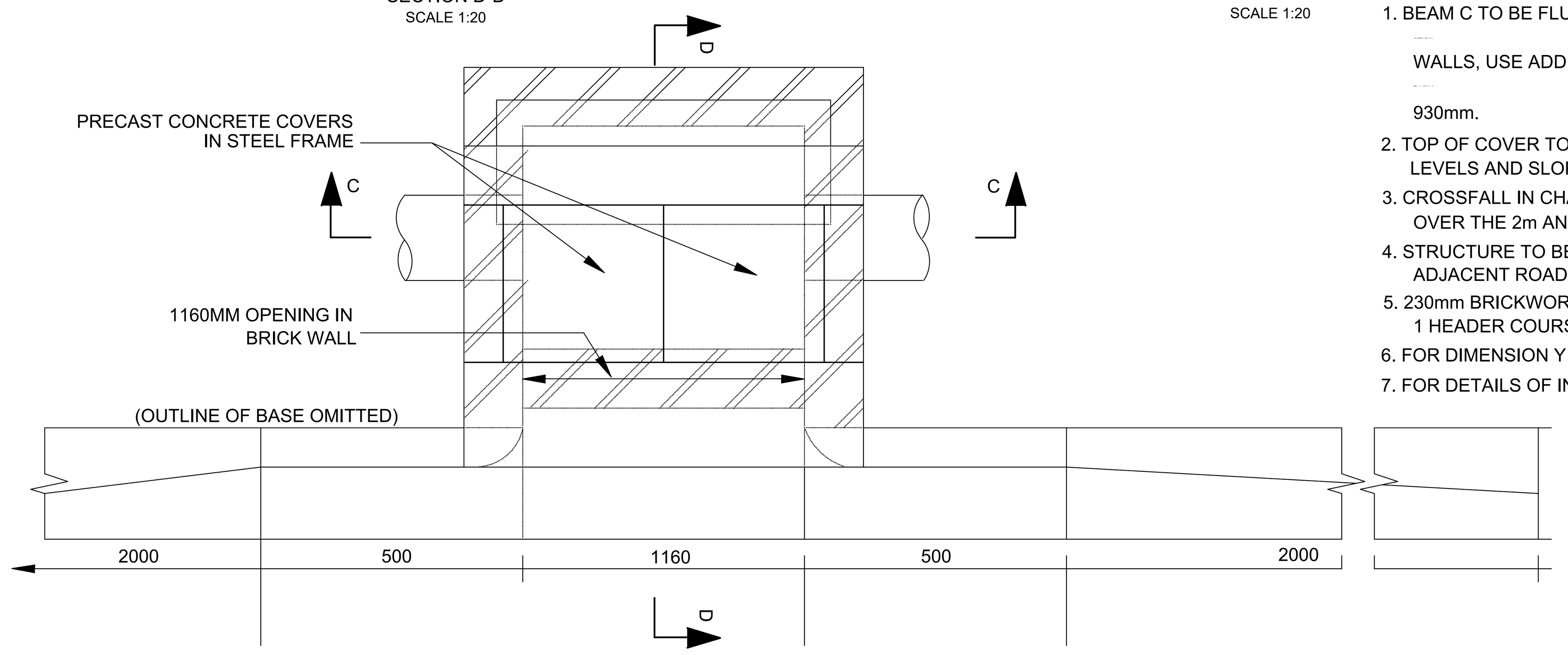


SECTION D-D
SCALE 1:20

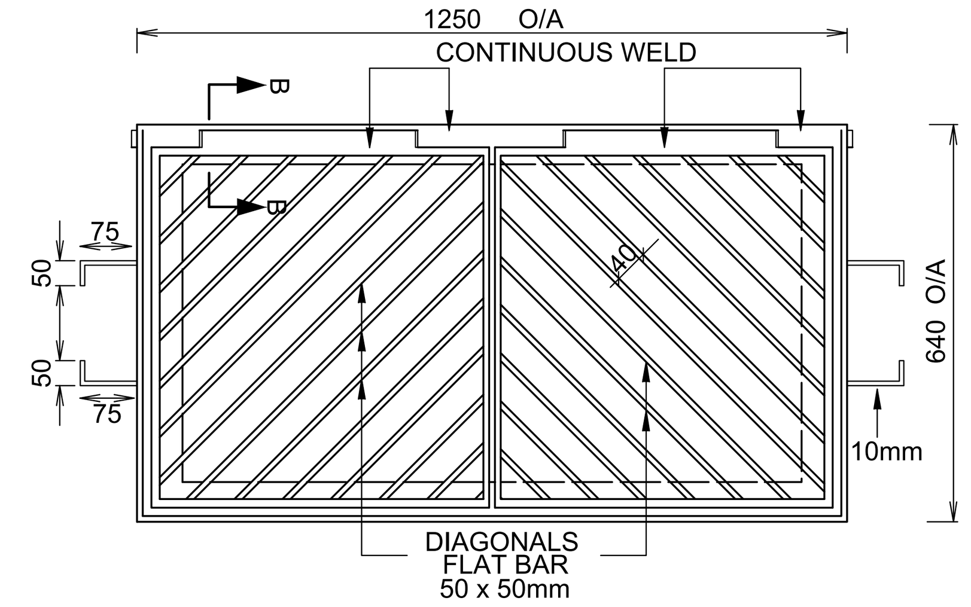


SECTION C-C
SCALE 1:20

NOTES :
1. BEAM C TO BE FLUSH WITH INSIDE FACE OF WALLS, USE ADDITIONAL BEAM C TO SUPPORT 930mm.
2. TOP OF COVER TO BE SET TO FINAL GROUND LEVELS AND SLOPE.
3. CROSSFALL IN CHANNEL CHANGES UNIFORMLY OVER THE 2m AND 0.5m TRANSITIONS.
4. STRUCTURE TO BE BRACED WHILST COMPACTING ADJACENT ROAD LAYERS.
5. 230mm BRICKWORK LAID IN BOND OF 2 STRETCHERS & 1 HEADER COURSE, UNPLASTERED WITH FLUSH JOINTS.
6. FOR DIMENSION Y SEE TABLE ON PSLE1.
7. FOR DETAILS OF INLET SEE DRWG PSLE4/2.

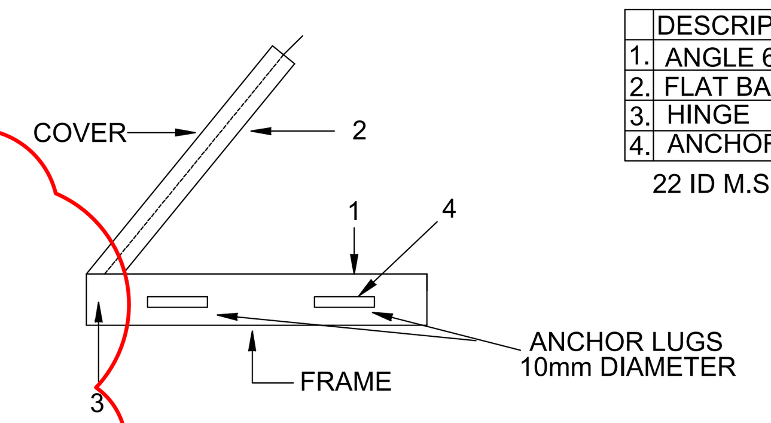


PLAN VIEW
SCALE 1:20

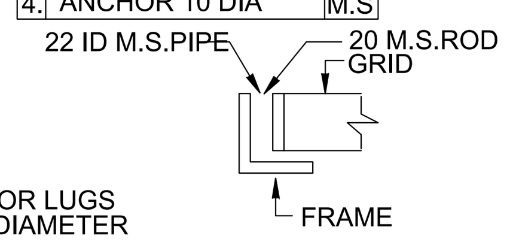


FRAME ASSEMBLY DETAIL AS PER PSLE 2/2
SCALE 1:10

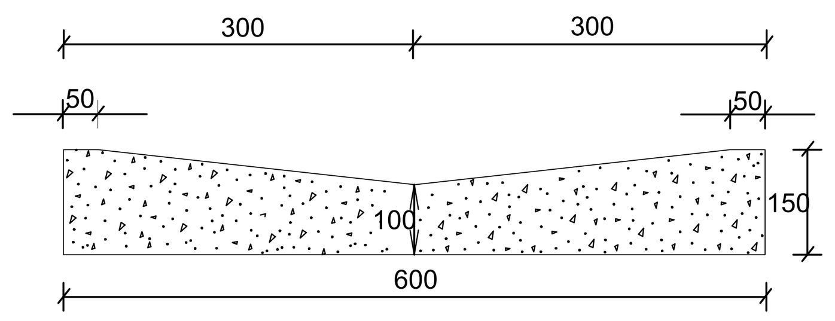
DESCRIPTION	MTL
1. ANGLE 60x60x8mm	M.S
2. FLAT BAR 50x10mm	M.S
3. HINGE	M.S
4. ANCHOR 10 DIA	M.S



SIDE ELEVATION
SCALE 1:10

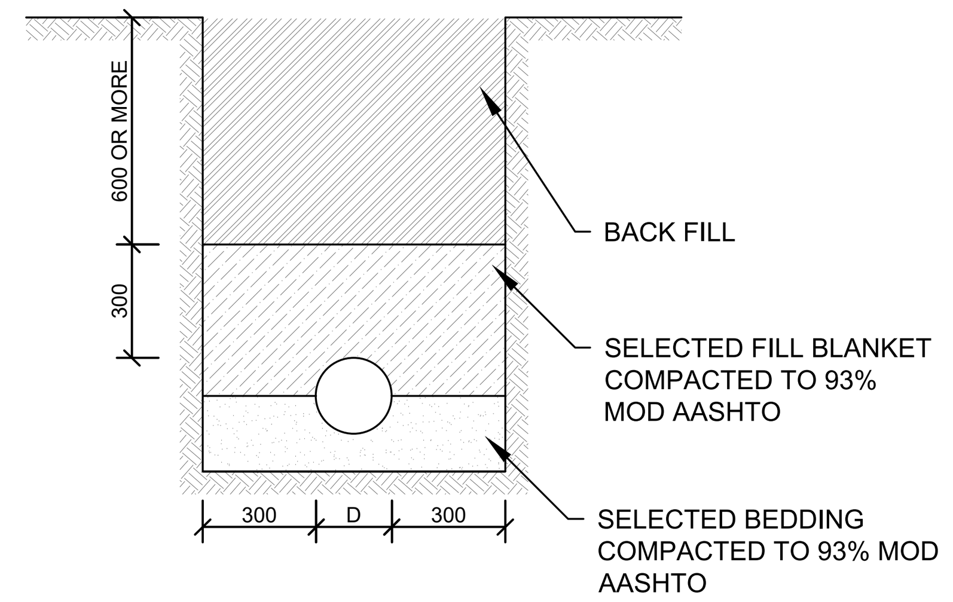


SECTION B-B
SCALE 1:10

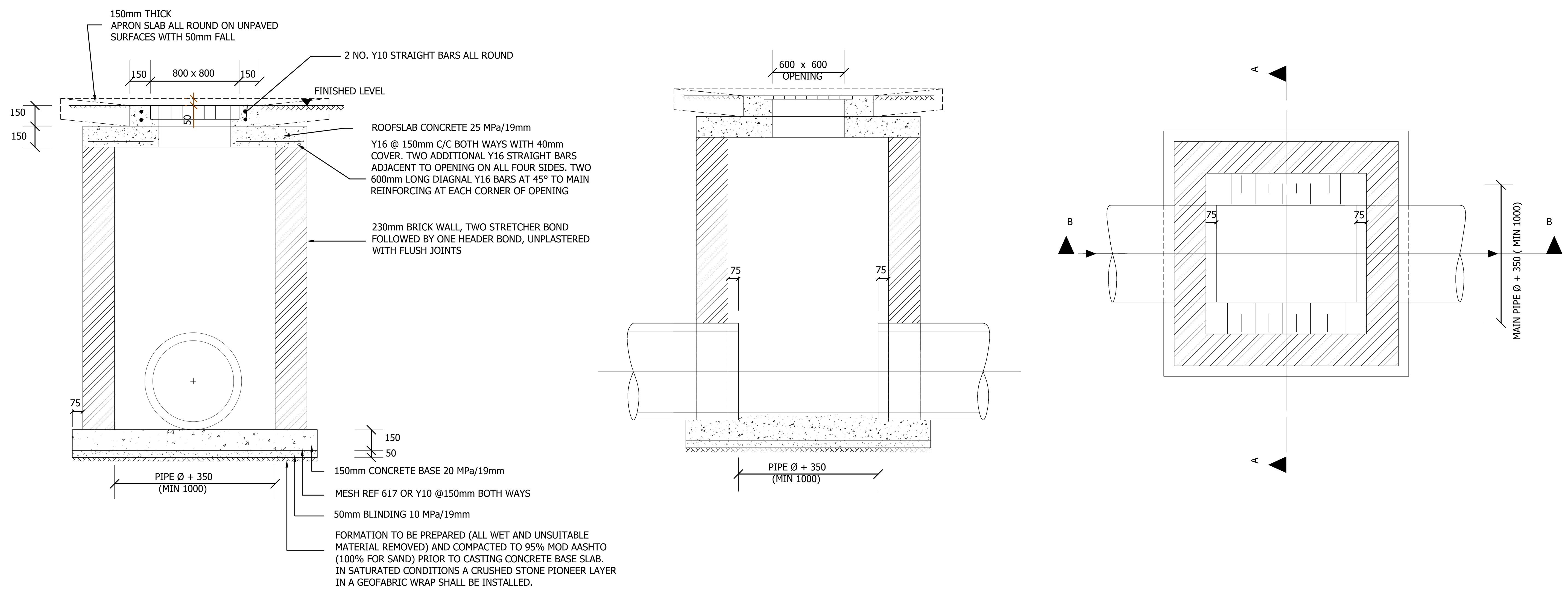


25MPa CONCRE
30MPa CONCRETE. IN-SITU MATERIAL TO BE OF G5 SUBBASE QUALITY, COMPACTED TO MINIMUM 95% MOD. A.A.S.H.T.O. DENSITY.
FINISH TO BE WOOD FLOATED.
CONTRACTION JOINTS AT MAXIMUM INTERVAL OF 4m.

STORMWATER V-CHANNEL
600mm WIDE

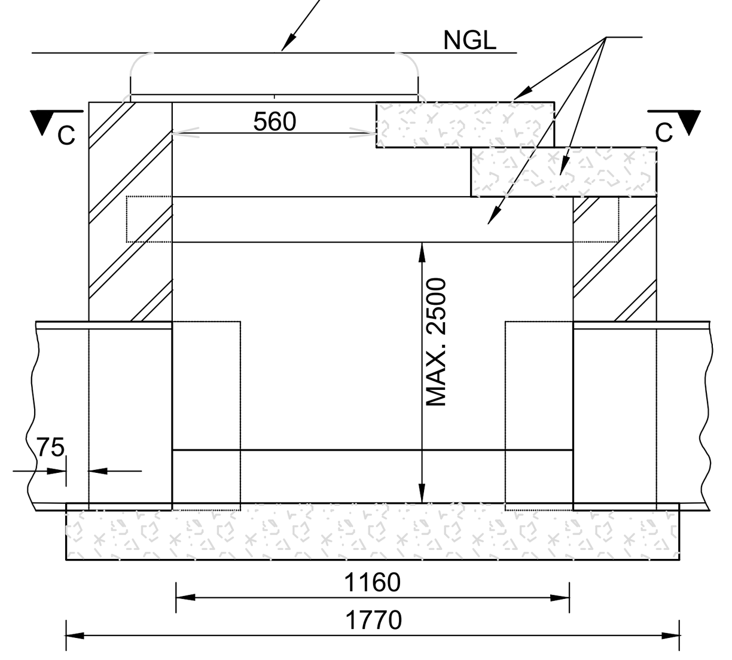


TYPICAL TRENCH DETAIL
SCALE 1:20

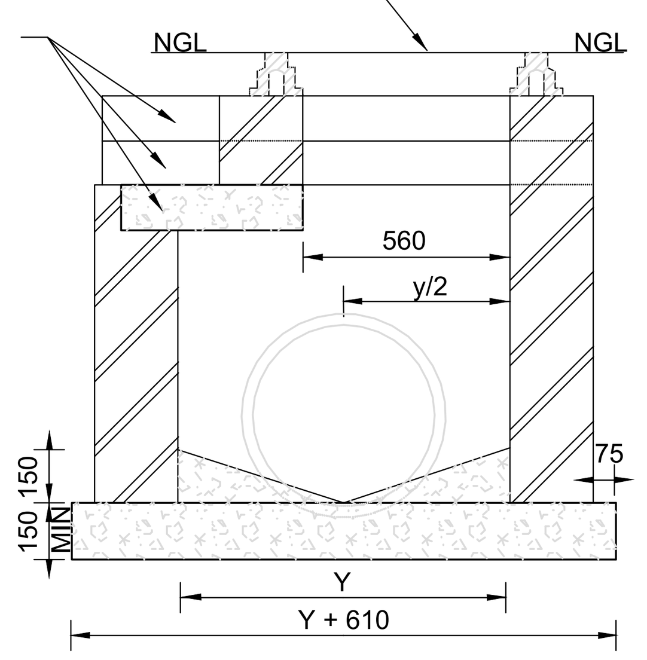


SINGLE GRID INLET STRUCTURE

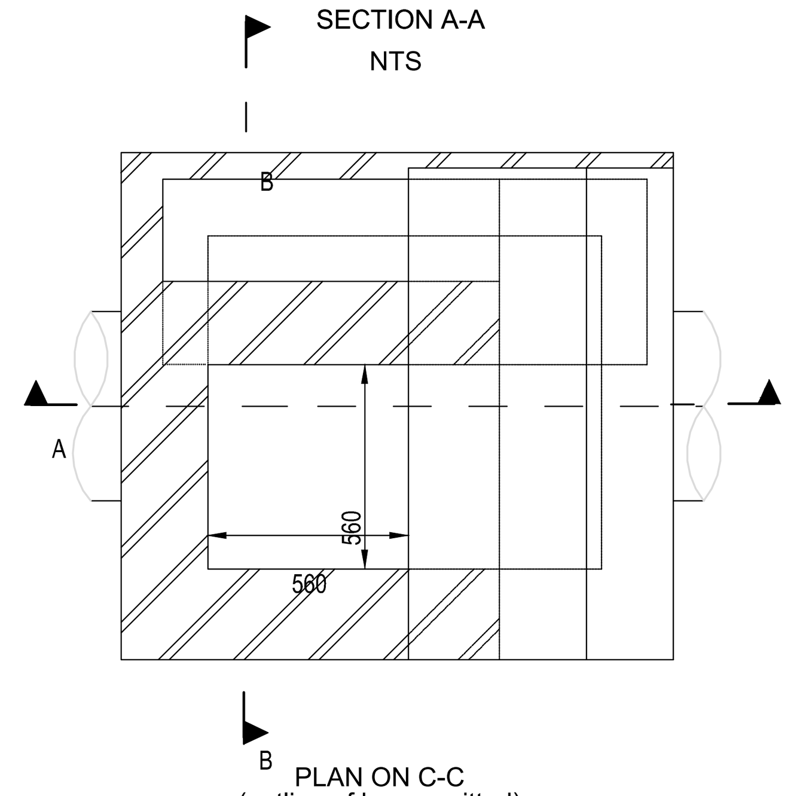
HEAVY DUTY COVER AND FRAME SABS 558 TYPE 2A



SECTION A-A
NTS



SECTION B-B
NTS



PLAN ON C-C
(outline of base omitted)

NOTES :
1. C1 FRAME TO BE SET FLUSH WITH FINAL SURFACE LEVEL.
2. PIPES MAY PROTRUDE INTO MANHOLE UP TO 300mm.
3. SEMI-CIRCULAR HOLLOW OF FRAME TO BE FILLED WITH CONCRETE.
4. BED C1 FRAME FULLY ON MORTAR ALL ROUND.
5. SAME AS 5/1.
5. 230mm BRICKWORK LAID IN BOND OF 2 STRETCHERS & 1 HEADER COURSE,
6. 'OPENING' TO BE AT DOWNSTREAM END OF MANHOLE SO THAT CLEANING EQUIPMENT, WHICH IS RODDED UPSTREAM HAS AN EASIER CURVE TO GET IN.
7. FOR DIMENSION Y SEE TABLE ON PSLE 1.
8. BRACE STRUCTURE WHILE COMPACTING ADJACENT ROAD LAYERS.

FOR INFORMATION

Amendments

Rev	Date	Description	Initials
0	FEB 2024	FOR INFORMATION	E.D.T
1	FEB 2024	STORMWATER CHANNEL ADDED	E.D.T

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Service authority approval

Position	Name	Date	Signature

Client(s)
health
Department: Health
REPUBLIC OF SOUTH AFRICA
Signature________________ Date______
Client Drawing No.: Sht Of

Project title
MOTHERWELL CHC

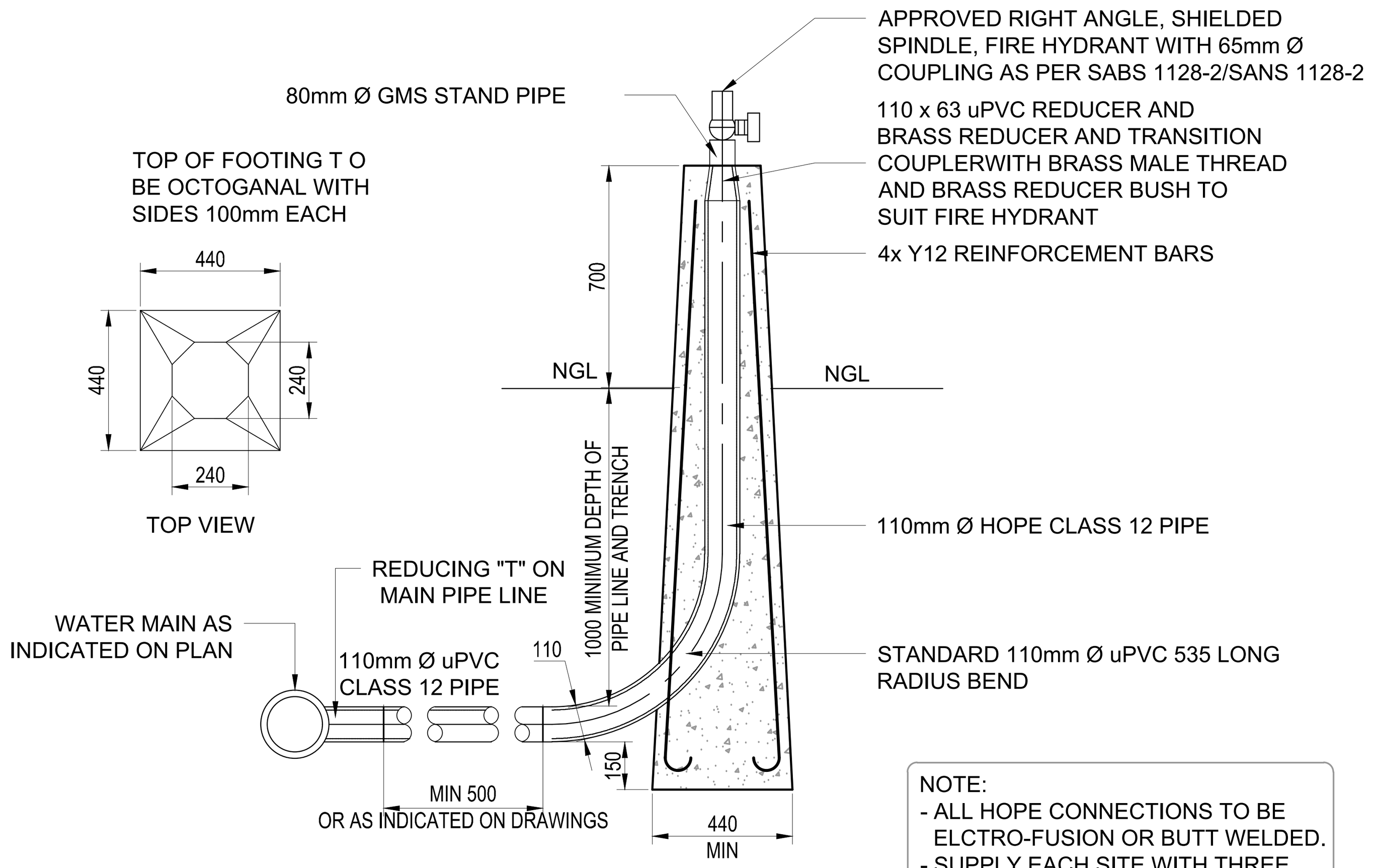
Drawing title
CIVIL SERVICES: STORMWATER DETAILS

Scale: AS SHOWN Co-ordinate System:
Paper Size: A1

SMEC
Member of the Surbana Jurong Group
PR ______
Signature________________ Date ______

Process	Name	Date	Signature
Designed	E. DU TOIT		
Checked	D. SHARP		
Verified	J.KAMPMAN		
Drawn	E. DU TOIT		
Checked	D.SHARP		

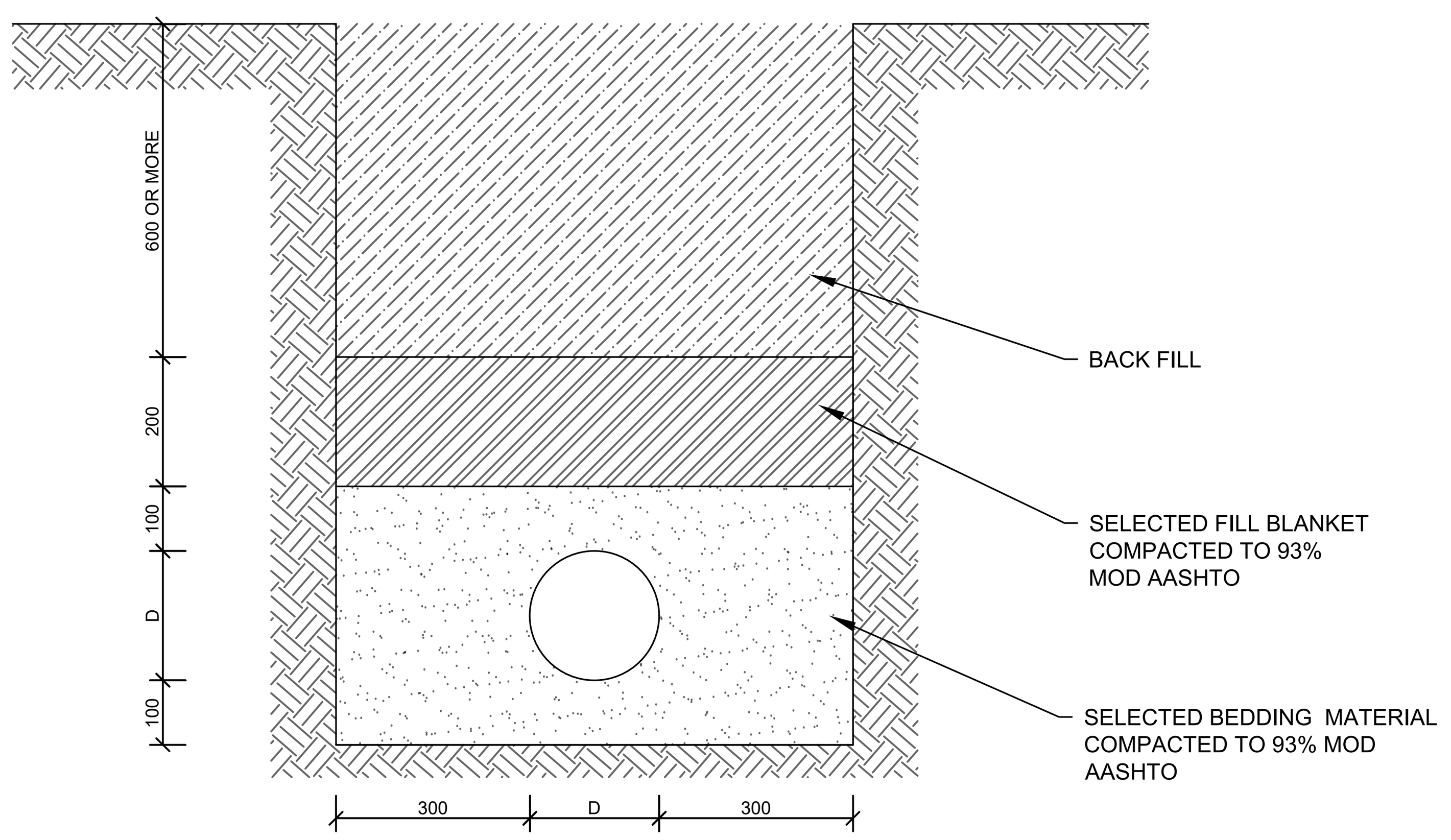
SMEC Drawing No.: EC0034-MTH-STW-DET-016
Rev 01



NOTE:
- ALL HOPE CONNECTIONS TO BE ELCTRO-FUSION OR BUTT WELDED.
- SUPPLY EACH SITE WITH THREE HYDRANT KEYS AS PER DETAIL TYPE NO DT 04/W

FIRE HYDRANT DETAIL

SCALE: N.T.S

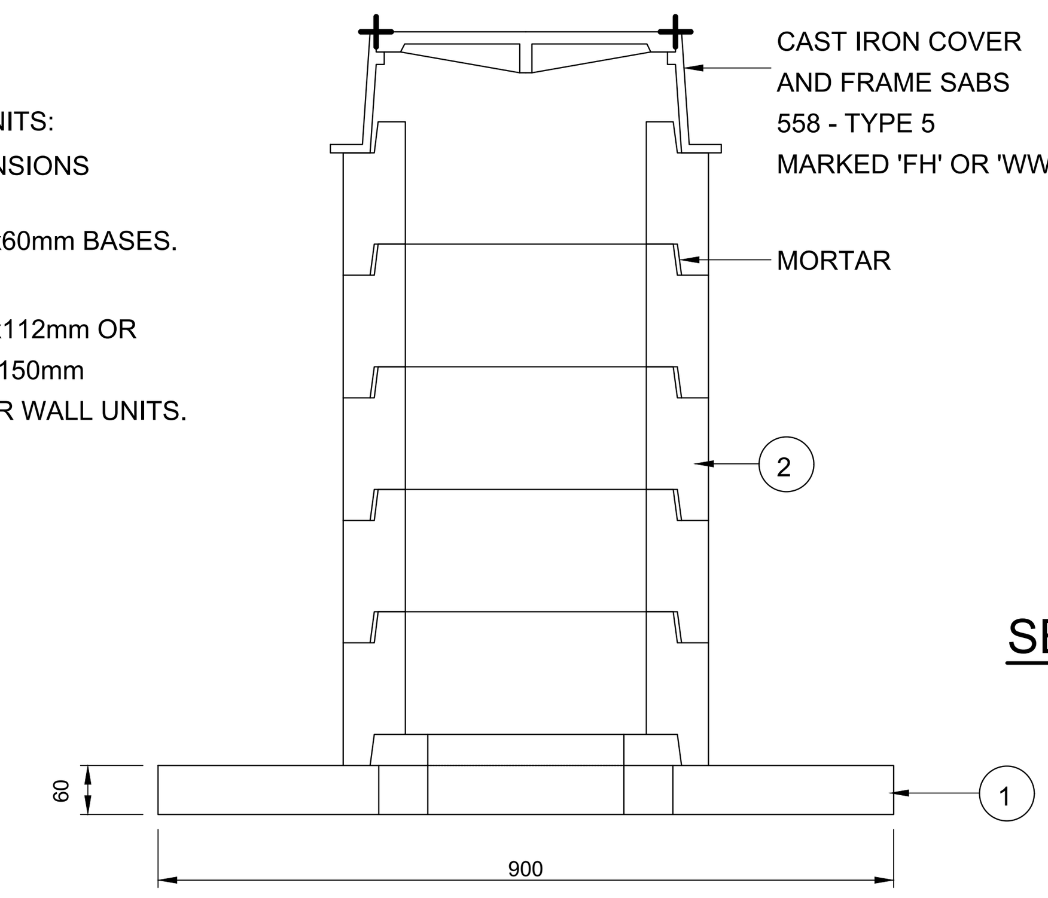


TYPICAL TRENCH DETAIL

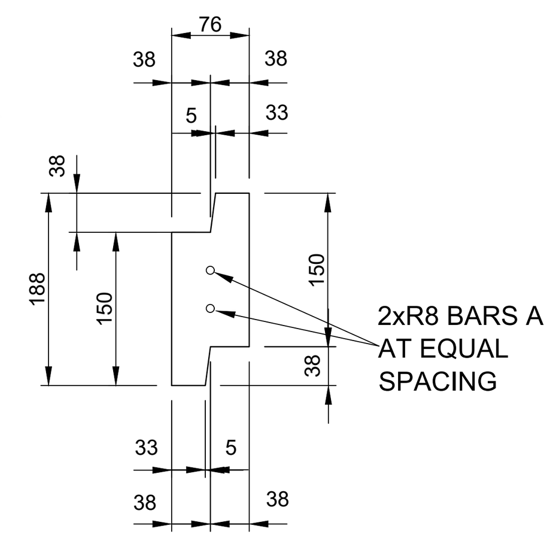
SCALE 1:10

PRECAST UNITS:
BASIC DIMENSIONS

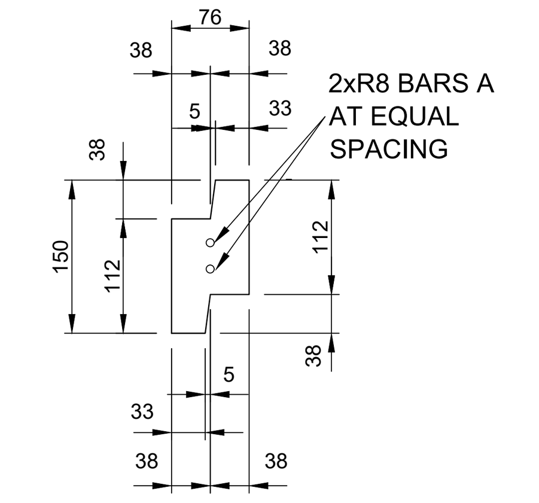
1. 900x190x60mm BASES.
2. 477x402x112mm OR 477x402x150mm CHAMBER WALL UNITS.



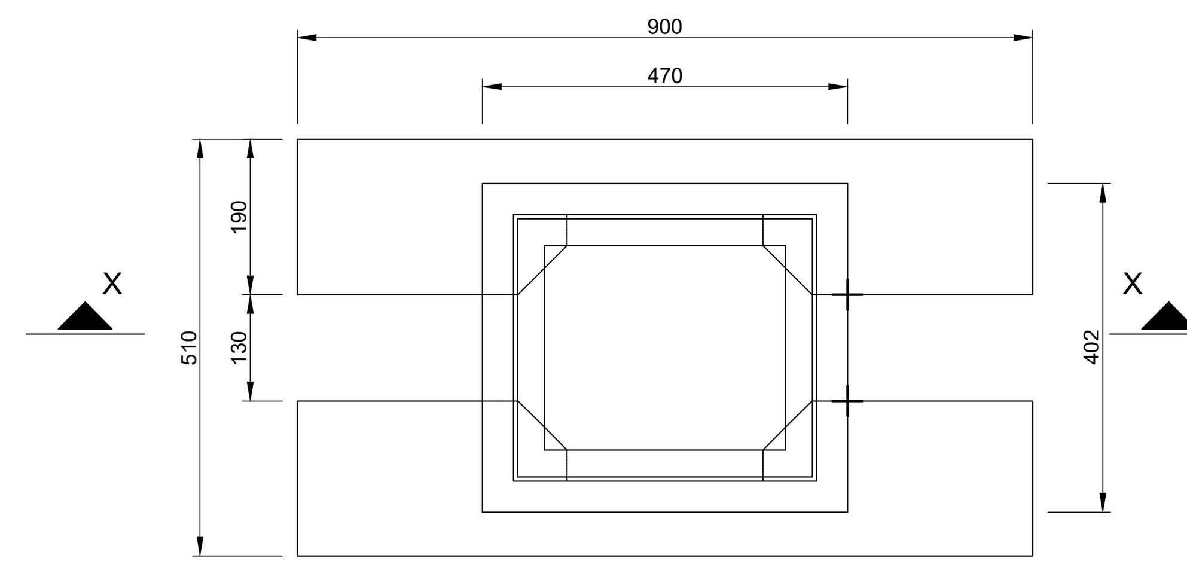
SECTION X-X



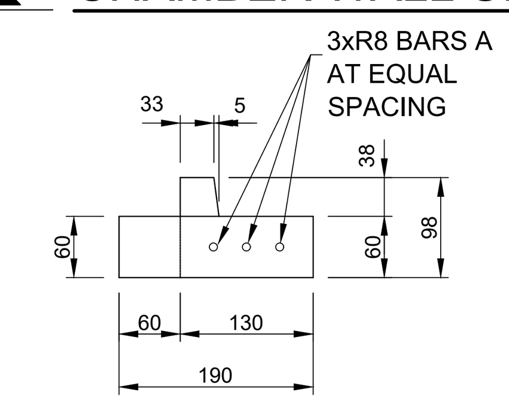
SECTION THROUGH 150mm CHAMBER WALL UNITS



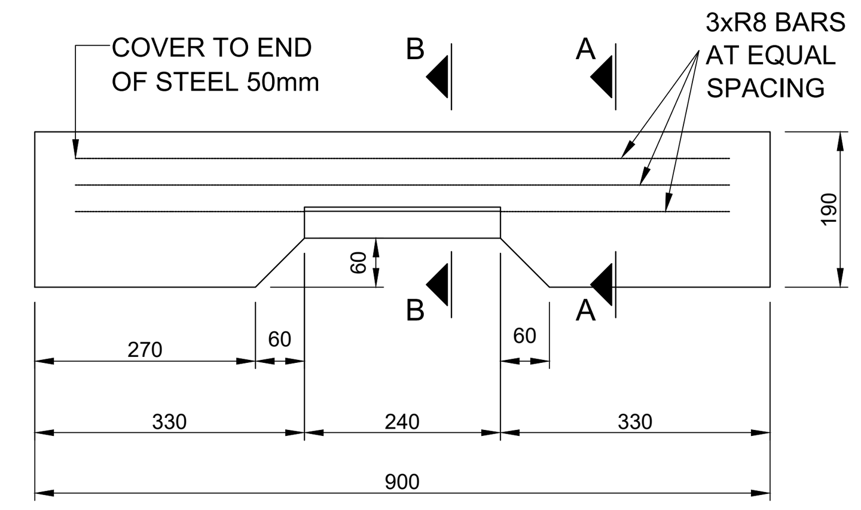
SECTION THROUGH 112mm CHAMBER WALL UNITS



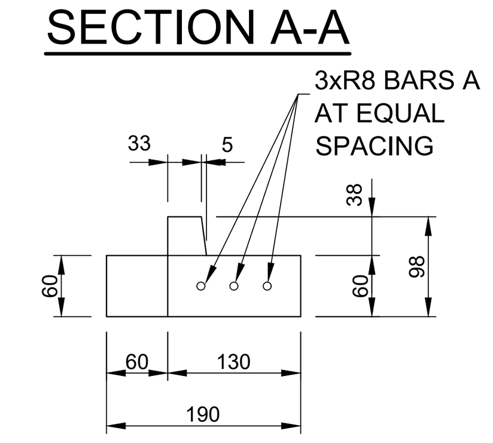
PLAN OF CHAMBER WALL UNIT POSITIONED WITH BASES



SECTION A-A



PLAN OF BASE UNIT



SECTION B-B

NOTES:

1. ALL CONCRETE TO BE A MINIMUM OF 25MPa.
2. A COMBINATION OF 112mm AND 150mm HIGH CHAMBER WALL UNITS ARE TO BE USED TO MAKE UP DIFFERENCES IN LEVELS.
3. MORTAR ONLY TO BE USED AT TOP JOINT TO MAKE UP LEVELS.

REINFORCEMENT BENDING SCHEDULE

MK		No	Length	Bending	Total Mass
A	R8	2	1700	Shape Code 60 of SABS 82 of 1976 (391 INT, 316 INT)	1.343kg
B	R12	3	800	STRAIGHT	2.131kg

PRECAST CONCRETE CHAMBERS FOR HYDRANTS AND SLUICE VALVES

FOR INFORMATION

Amendments

Rev	Date	Description	Initials
0	FEB 2024	FOR INFORMATION	E.D.T

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Service authority approval

Position	Name	Date	Signature

Client(s)

Signature_______________ Date_______

Client Drawing No.: Sht Of

Project title

MOTHERWELL CHC

Drawing title

CIVIL SERVICES: WATER RETICULATION DETAILS

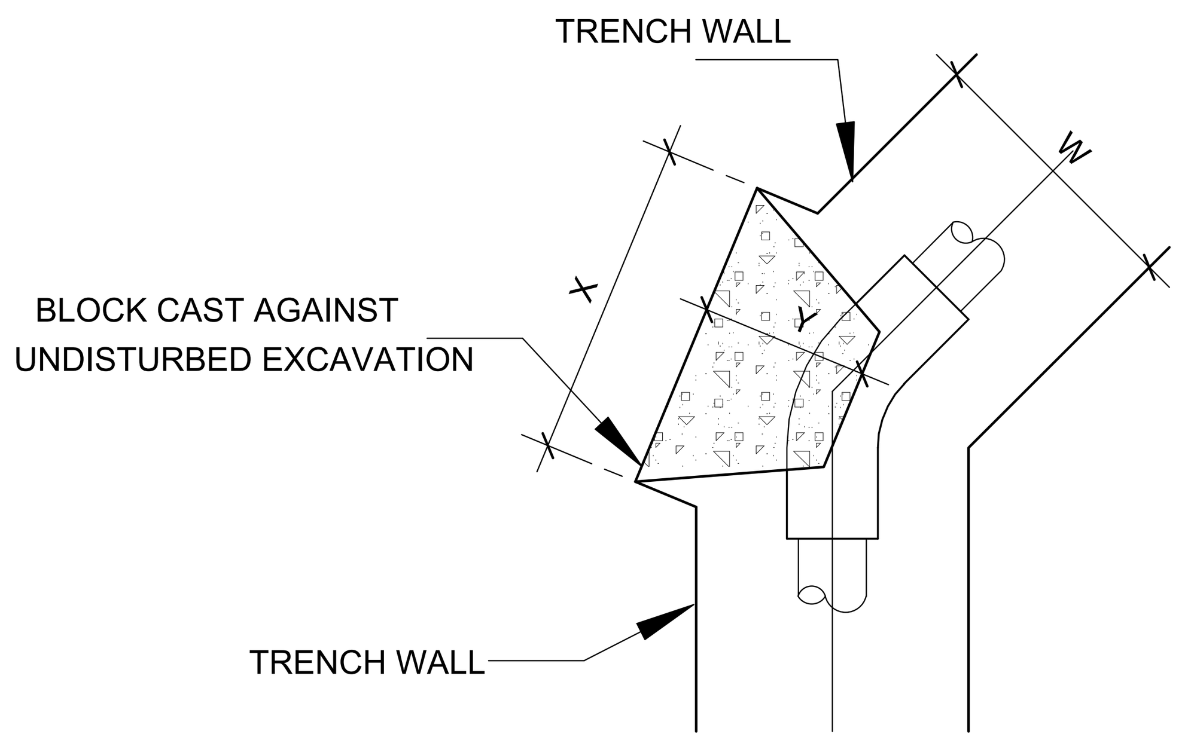
Scale: AS SHOWN Co-ordinate System:
Paper Size: A1

SMEC
Member of the Surbana Jurong Group

PR _______
Signature_________________ Date_______

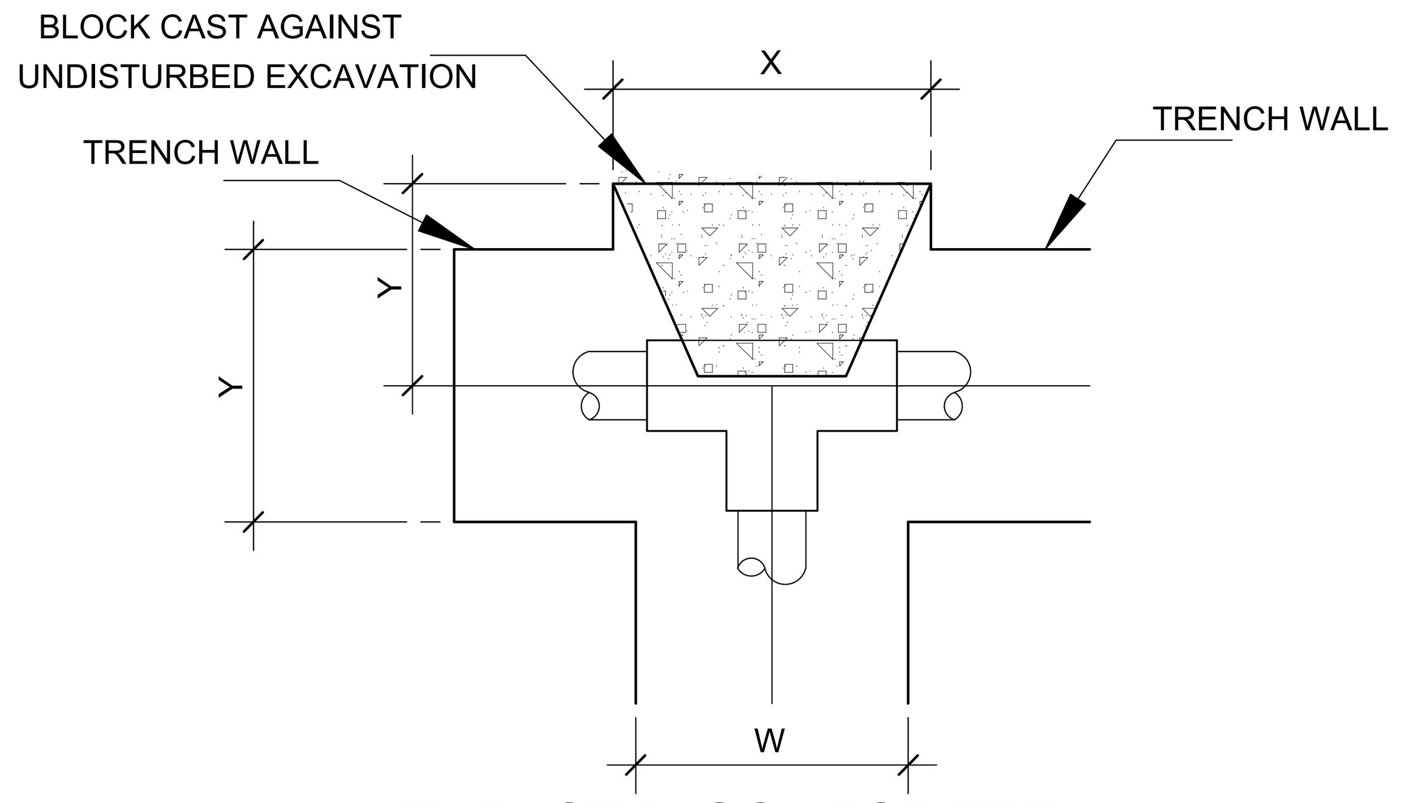
Process	Name	Date	Signature
Designed	E. DU TOIT		
Checked	D. SHARP		
Verified	J.KAMPMAN		
Drawn	E. DU TOIT		
Checked	D.SHARP		

SMEC Drawing No.: C3239-MCHC-WAT-DET-031 Rev



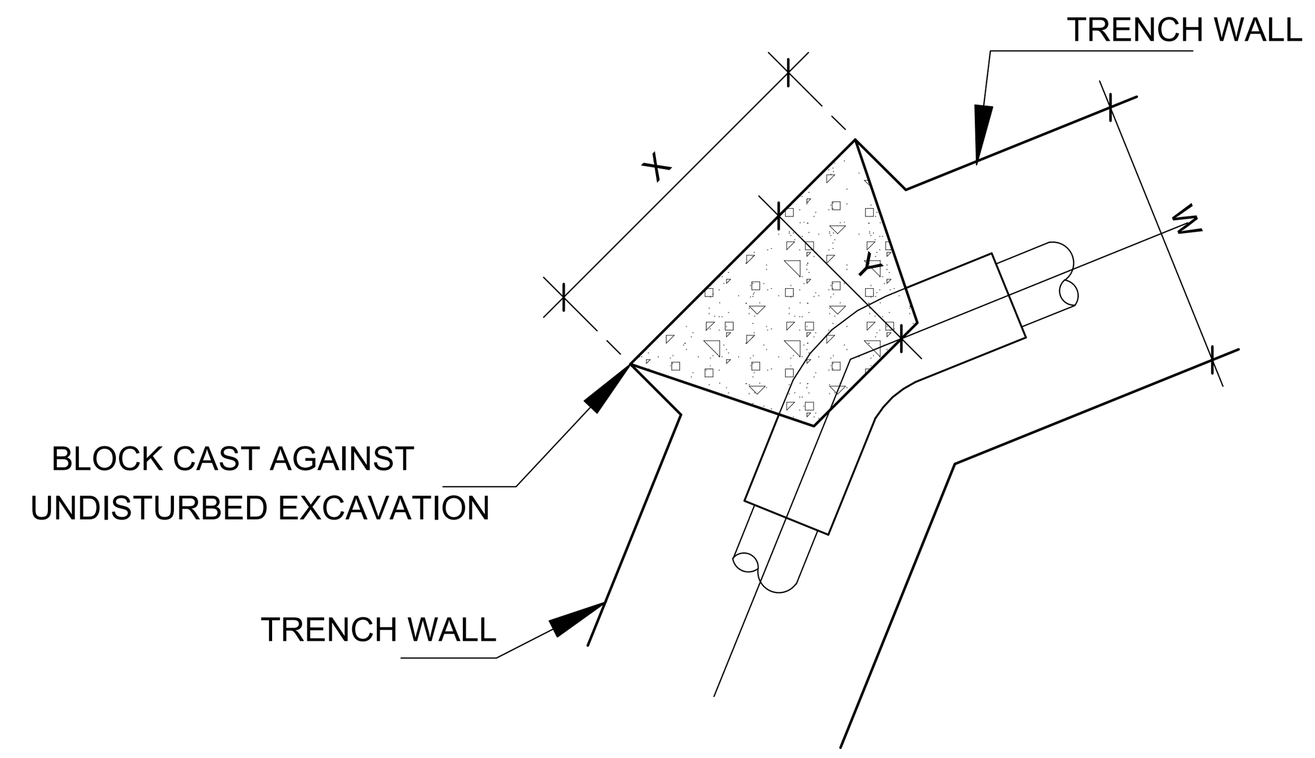
THRUST BLOCK FOR 45° BEND

NOMINAL DIAMETER ø (mm)	DIMENTIONS				
	D (mm)	Z (mm)	X (mm)	Y (mm)	VOL. (m²)
300	1 400	700	2 000	1 000	1,400
250	1 300	650	1 600	800	0,800
200	1 200	600	1 200	600	0,430
150	1 000	500	1 000	500	0,250
100	1 000	500	350	250	0,043
75	800	400	350	200	0,028



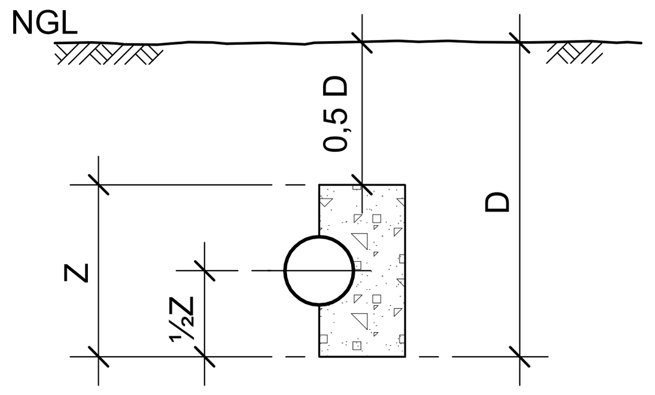
THRUST BLOCK FOR TEE

NOMINAL DIAMETER ø (mm)	DIMENTIONS				
	D (mm)	Z (mm)	X (mm)	Y (mm)	VOL. (m²)
300	1 400	700	2 700	1 300	2,550
250	1 300	650	2 150	1 100	1,500
200	1 200	600	1 600	800	0,770
150	1 000	500	1 300	650	0,420
100	1 000	500	500	300	0,075
75	800	400	450	300	0,054



THRUST BLOCK FOR 221½° BEND

NOMINAL DIAMETER ø (mm)	DIMENTIONS				
	D (mm)	Z (mm)	X (mm)	Y (mm)	VOL. (m²)
300	1 400	700	1 000	500	0,350
250	1 300	650	760	400	0,200
200	1 200	600	600	400	0,150
150	1 000	500	500	300	0,075
100	1 000	400	300	200	0,024
75	800	300	300	200	0,018



SECTION

NOTES :

1. THIS TABLE WAS CALCULATED FOR THRUST BLOCKS IN SANDY SOILS.
2. USE 10 MPa CONCRETE.
3. HALF THE DEPTH OF THE THRUST BLOCK NEEDS TO BE BELOW THE PIPE AXIS.
4. KEEP THE CONCRETE AWAY FROM THE COUPLINGS & THE PIPE JOINTS.
5. THRUST BLOCKS FOR PIPE ø LARGER THAN 300mm & HIGHER TEST PRESSURES THAN 18 BAR NEEDS TO BE DESIGNED BY THE ENGINEER.
6. THRUST BLOCKS AT PADDLE FLANGES NEEDS TO BE REINFORCED & DESIGNED BY THE ENGINEER.
7. IN CASE OF SOFT CLAY & SILTY SANDS, THRUST BLOCKS NEED TO BE DESIGNED BY THE ENGINEER.

FOR INFORMATION

Amendments			
Rev	Date	Description	Initials
0	FEB 2024	FOR INFORMATION	E.D.T

Drawing notes

Service authority approval

Position	Name	Date	Signature

Client(s): health Department: Health REPUBLIC OF SOUTH AFRICA

Signature Date

Client Drawing No.: Sht Of

Project title: MOTHERWELL CHC

Drawing title: CIVIL SERVICES: WATER RETICULATION DETAILS

Scale: AS SHOWN Co-ordinate System:
Paper Size: A1

SMEC Member of the Surbana Jurong Group

Signature Date PR

Process	Name	Date	Signature
Designed	E. DU TOIT		
Checked	D. SHARP		
Verified	J.KAMPMAN		
Drawn	E. DU TOIT		
Checked	D.SHARP		

SMEC Drawing No.: C3239-MCHC-WAT-DET-032 Rev

PLOT DATE 20 Jun 2019 TIME 14:06:50

NOTES:

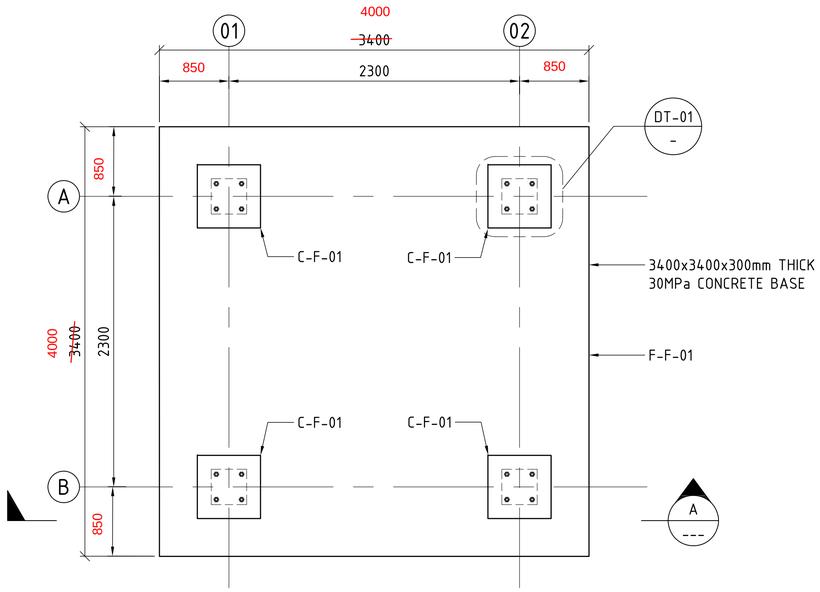
1. REFER TO DNS-001 & DNS-002 FOR GENERAL NOTES.
2. FOUNDATION DESIGN BASED ON 200 KPA ALLOWABLE BENDING PRESSURE. CONTRACTOR TO CONFIRM PRIOR TO CONSTRUCTION.

LEGEND:

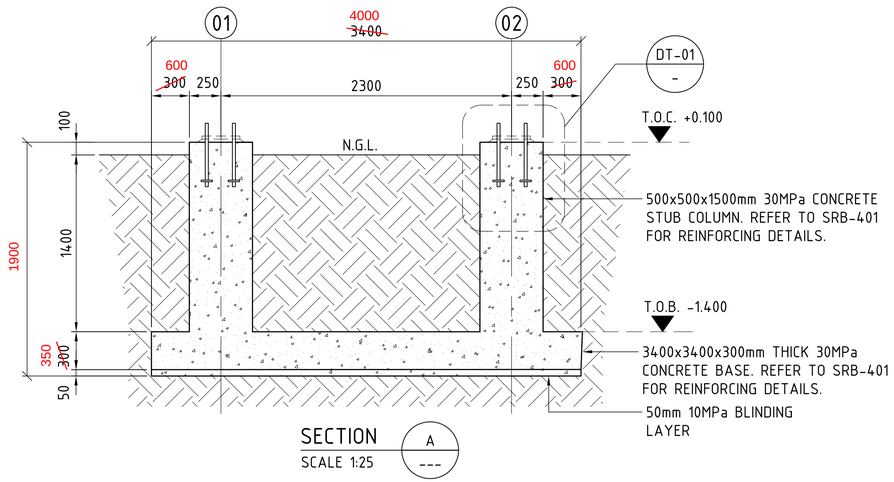
ELEMENT NOMENCLATURE

ELEMENT:	LEVEL:	ELEMENT No:
B-BEAM	B-BASEMENT	001-999
C-COLUMN	F-FOUNDATION	
F-FOOTING	G-GROUND	
P-PENETRATION	1-8 FIRST TO EIGHTH	
S-STAIR		
W-WALL		

W - 1 - 001



WATER BASE PLAN
SCALE 1:25



SECTION
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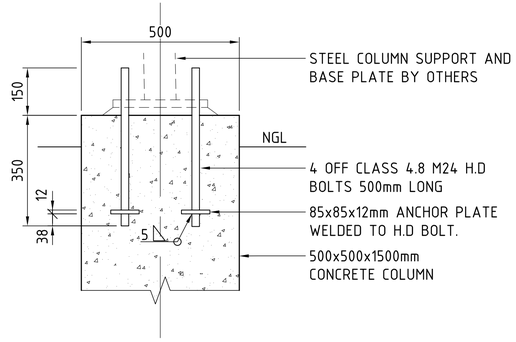
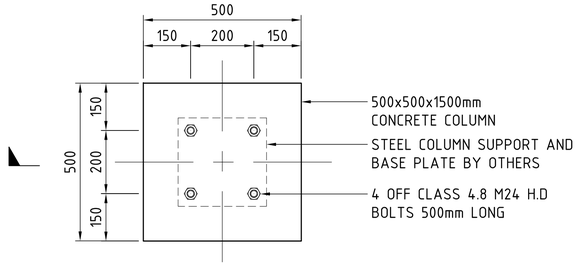


SECTION



PLAN
CONCRETE STUB C-F-01

DETAIL
SCALE 1:10
01
